# Dental Digest

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**March 1960**

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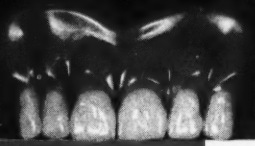

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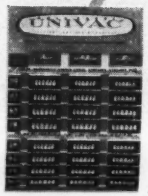


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# Dental Digest

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**MARCH 1960**

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# ANTERIOR REHABILITATION

## *Above the Cemento-Enamel Junction*

**LEONARD I. LINKOW, D.D.S., Kew Gardens Hills, New York**


### *DIGEST*

***This article demonstrates an advanced procedure for improving the appearance of the patient with malposed or unattractive upper anterior teeth. With this method function is also improved and the results have been found definitely satisfactory. The procedure requires that the incisal edge of the constructed appliance end at the original cemento-enamel junction.***


### *Conventional Approach*

Many methods have been employed to ameliorate the undesirable esthetic component and the function of malposed and unsightly upper anterior teeth. Three methods of approach are commonly used:

1) The four anterior teeth are extracted and a fixed appliance is made from cuspid to cuspid with or without an alveolectomy.

2) The four or six anterior teeth are extracted and a partial removable appliance is constructed.

3) In cases where the remaining teeth are not strongly supported by healthy bone tissue, all remaining teeth are extracted and a denture is constructed with or without an alveolectomy.

### *Advanced Method*

Figures 1 and 2 show the patient when she first appeared for treatment.

The procedure includes the following steps:

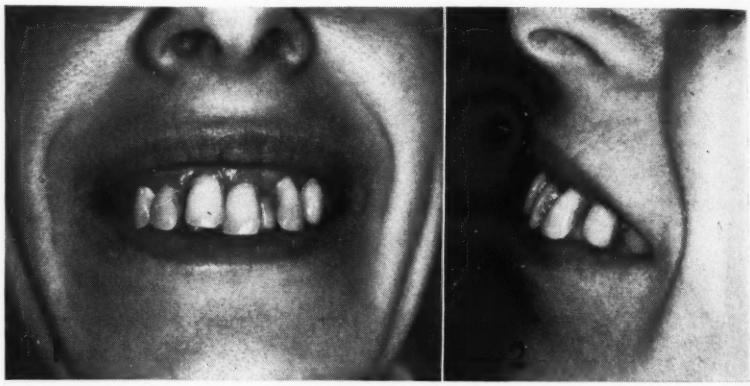
1) The four anterior teeth were extracted under local anesthetic (Figs. 3 and 4).

2) An extensive alveolectomy was performed with predetermined boundary lines for incisal height and the amount of overjet desired.

3) The cuspids were sliced horizontally at the cemento-enamel junction (Fig. 5).

4) Root canal therapy was performed.

5) *As shown in Figure* 6, *a new*



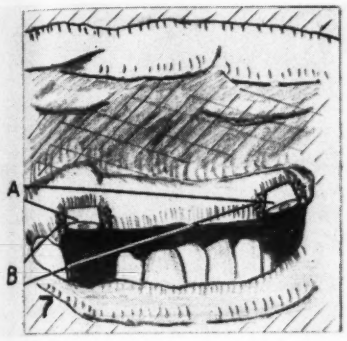
**1 and 2.**
***Front and profile views are shown of the patient before treatment was started.***

**3.**
***Immediately after extraction of the upper four anterior teeth. Shows the extreme length of the remaining cuspids.***

**4.**
***Shows the cuspids before the longitudinal slice at the cemento-enamel juncture. A, lip. B, muccobuccal fold. C, gingival tissue. D, lip.***

*gingival line was created above the cemento-enamel junction. After this was achieved, the bone around the root of the cuspids was removed to expose the roots* (Fig. 7).

6) These roots were prepared for jacket crowns (Figs. 8 and 9) and the necessary impressions and bites were taken.




**7.**
***Shows cuspid roots exposed after removing bone, labially, lingually, and interproximally. A, unprepared tooth roots. B, remaining alveolar bone.***

7) A temporary acrylic bridge was fabricated for the patient using the prepared roots as abutments. Stock teeth were placed in the mouth and held by wax.

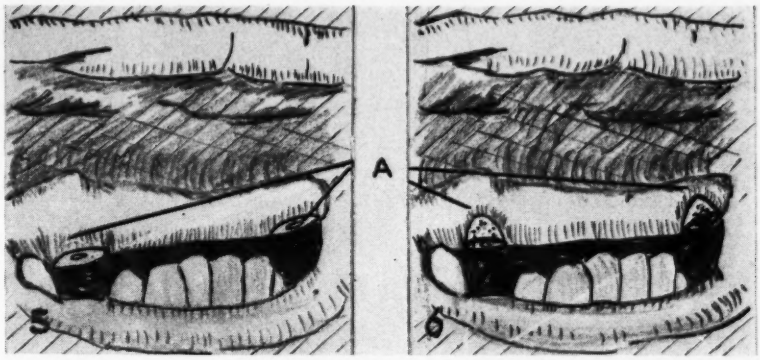
8) Cuspid preparations were built up to simulate cuspids with paint brush technique. Alginate impressions were taken over this. When removed, acrylic was placed in teeth areas of the alginate impression, which was replaced in the mouth, and allowed to harden.

9) The remainder of the procedure was completed using ordinary techniques for fixed bridgework. In this instance a porcelain-fused-to-platinum bridge was constructed with excellent results (Figs. 10 and 11).

## *Discussion*

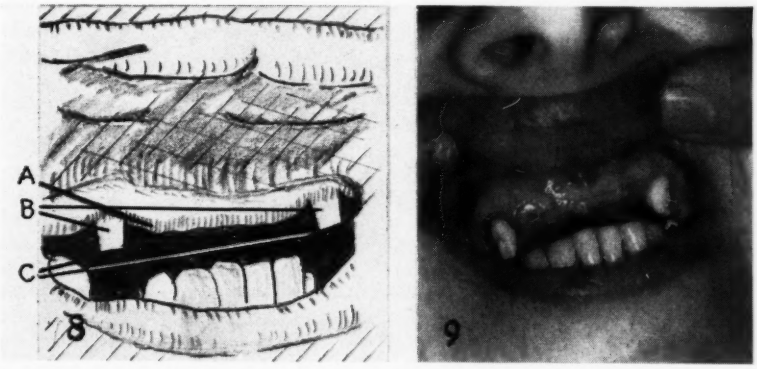
The results of this case emphasize the importance of the roots of teeth in successful full mouth rehabilitation. Formerly, the function of the root was limited; it was considered only as a supporting mechanism of the crown. In this case the root was used and prepared as a crown, and

(*Continued on page* 125)

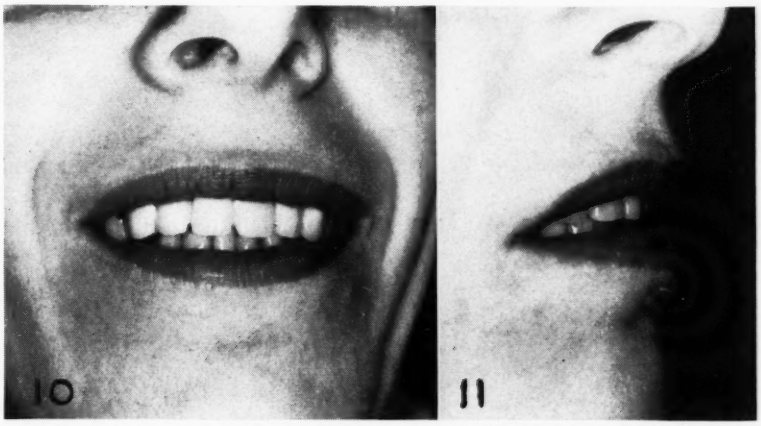



**5.**
***Shows the alveolar line after the cuspid crowns had been removed. A, gingival tissue.***

**6.**
***Shows new gingival margin created by cutting away the gingival tissue above the cemento-enamel junction. A, gingival tissue.***




**8 and 9.**
***Prepared roots above cemento-enamel junction and healed gingival tissue after completed alveolectomy. A, completed alveolectomy. B, prepared roots. C, cemento-enamel junction.***




**10.**
***Anterior view of permanent restoration.***

**11.**
***Profile view of completed case.***

# *Clinical Applications of* OCCLUSION *and* ARTICULATION

## Part Three

**LEO STOLL, D.D.S., Woodmere, Long Island, New York**

**DIGEST**

*This is the third installment of a seven-part article. In this section of the discussion specific directions are given for taking the three-point bite record that is to be used to reproduce essential maxillomandibular relationships in casts or appliances mounted on the articulator.*

### The Interocclusal Wax Bite Record

The interocclusal wax bite record is the interocclusal registration in wax of the opposing jaws and/or teeth when they are occluded into the wax. It is the record of a particular occluded maxillomandibular relation of the jaws and/or teeth.

*Centric Relation Bite Record*—The record is in common use in dentistry and the technique for obtaining it is general knowledge. It is most often employed for recording the centric relation of a patient's jaws and/or teeth and for establishing this relation between the patient's casts or appliances when they are mounted on the articulator. It is known as the centric relation bite record.

*Adjustment of Condylar Elements*—With some types of articulators having semi-adjustable condylar elements, an eccentric bite record is used for adjusting the condylar elements of the articulator. The most commonly made and used eccentric relation record is the protrusive relation bite record.

---

**22.**
***The commonly known "mush bite" record. This type of bite record is useless. The relations of the opposing teeth are completely obstructed and it is impossible to gauge the correctness of the maxillomandibular relation of the jaws or the relations of the opposing teeth.***

**23.**
***A bite record made with a few layers of wax which is fairly well trimmed away from the teeth. This is an improvement over the "mush bite" but also leaves much to be desired. It is still difficult to gauge the separation between or the relation of the opposing teeth with the bite record in place.***

**24.**
***The identical relation of the opposing teeth shown in Figure 23, with the bite record removed. Note the considerable interocclusal space which could not be gauged when the bite record was in place.***

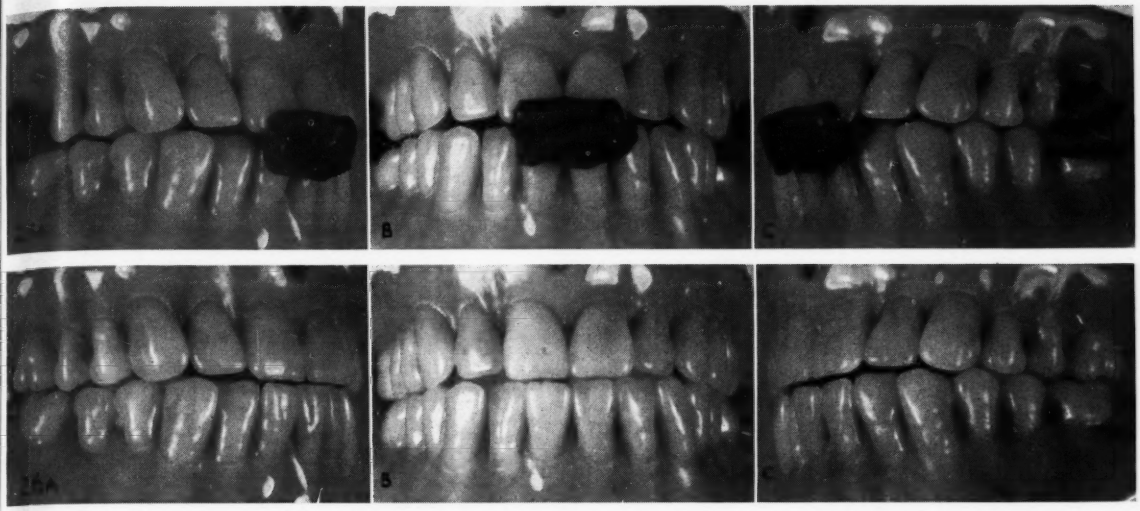
*Method Depends on Bite Records*—The method for using the maxillomandibular relations of casts or appliances mounted on the articulator to duplicate the maxillomandibular relations as a substitute for the patient's mandibular disposition and/or movements depends exclusively on the interocclusal wax bite records.

*Accuracy of Primary Importance*—Obviously, the accuracy of the essential maxillomandibular relations recorded and the faithfulness of the reproduction of these relations between the casts or appliances mounted on the articulator, as determined with the interocclusal wax bite record, depend primarily on the accuracy with which the records are made and subsequently used.

*Refinement of Present Technique*—Since employment of the interocclusal wax records is such an essential clinical procedure in the method for duplicating the patient's maxillomandibular relations on the articulator an effort was made to refine the customary technique for making and using the bite records.

### Three-point Bite Record

A simple modification in the shape and form of the wax used for making the record was made. Because of this modification, a definite improvement



**25.**
*The three-point bite record shown properly placed between the teeth of artificial full dentures. A, a right side view; B, a front view; C, a left side view. Note the extremely small separation between, and the relationship of the opposing teeth without any actual contact of these teeth. Also note the great amount of visibility of the dental area as a result of the widely spaced small areas of wax used for making the bite record.*

**26.**
*The identical relations of the teeth as shown in Figure 25, with the three-point bite record removed. A, the right side view; B, the front view; C, the left side view. The extremely small separation between the opposing teeth without any actual contact between them can be seen.*

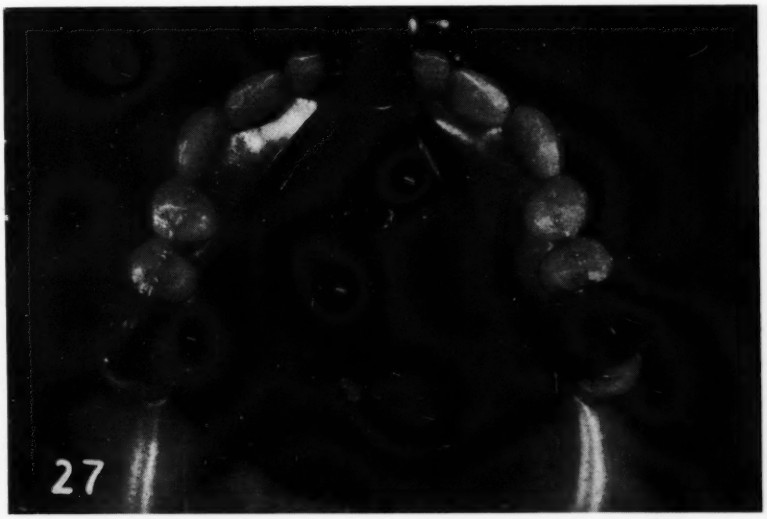
*The opposing teeth shown in the previous figures must be occluded on the articulator until they make some contact with each other. It is obvious that the degree of rotational movement on the articulator around an axis passing through the pivotal joint of the articulator required to bring the opposing teeth into contact with each other will be of extremely small magnitude.*

*It should be noted that for the amount of rotational movement involved on the articulator a considerable discrepancy between the patient's mandibular hinge-axis and its mechanical equivalent on the articulator would be required to introduce an appreciable error in the equivalence of the occluded maxillomandibular relation of the dentures and/or teeth. Any actual error in the equivalence of the denture relations is of no practical significant importance and only theoretically debatable. This will be discussed again when the mandibular hinge-axis is considered.*

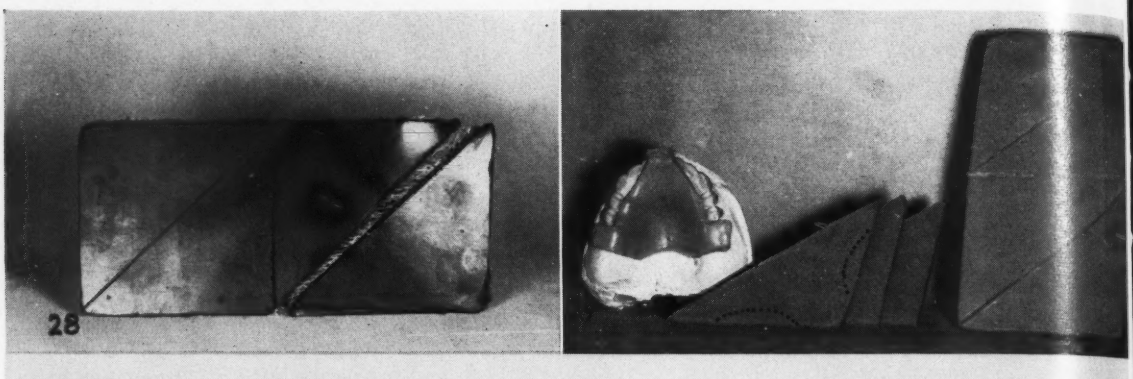
in the technique for obtaining the record from the patient was developed. The interocclusal wax bite record, as it was finally developed by the author, is descriptively called the three-point bite record. It is based on a principle in kinematics.

*Motion of a Body Studied*—In general, to determine the motion of a body relative to another body the motion of three noncollinear points on it must be known; that is, three points not in a straight line.

*Relative Movements of Objects*—Obviously, to determine the particular change in disposition of a body relative to another body which is the result of a relative movement of one of the bodies, all that is required is to determine the displacement or change in position of only three noncollinear points on the moving body

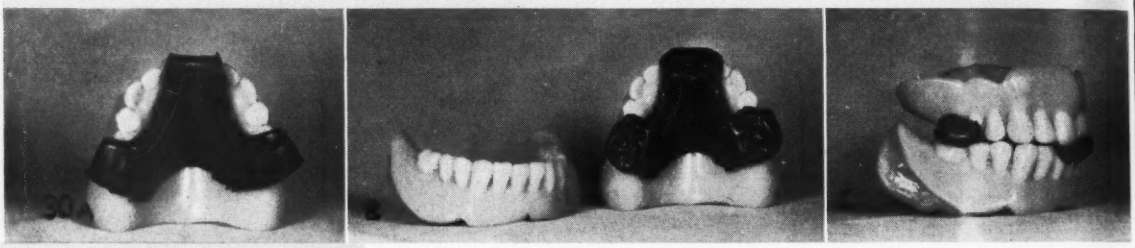



**27.**
*A close-up view of a three-point bite record on an upper denture. Note the three extremely small and widely separated areas of wax required to make the bite record. Also note the way that wax is cut away from the teeth of the denture in order not to obstruct the major portion of the dental area.*




**28.**
***The preparation of the wax used for making the three-point bite record. A layer of gauze is interposed between two warm layers of baseplate wax, which are pressed together and united. The gauze reenforces the wax of the three-point bite records. The wax sheet is scored, as shown, and then cut into four triangular sections.***

**29.**
***The scored sheet of wax and wax segments cut from a similar piece of wax. The dotted lines on one of the segments indicate the general area from which wax is cut away. The three corner ends of the wax are then doubled over to give added thickness to the wax in these areas. A properly prepared three-point bite record wax is shown on a model.***




**30.**
***A, The three point bite record wax properly placed on an upper artificial denture prior to making the bite record on the patient, B, the bite-record seated on the upper denture, C, the dentures related to each other with the bite record.***

relative to the other body.

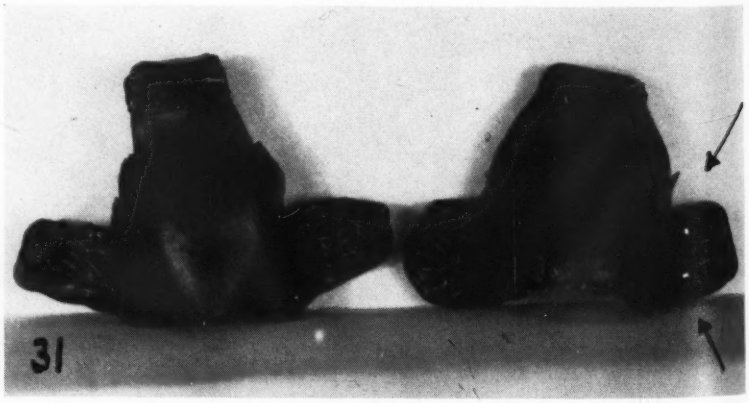
*Shape and Form of Jaws Favorable* —If three such points are fixed on the movable body, it is evident that no motion is possible between the bodies. The shape and form of the jaws are favorable for obtaining three widely noncollinear points approximating the corners of an equilateral triangle.

*Other Points of Contact Superfluous* —Since only three noncollinear points of contact between the jaws and/or teeth are required for preventing relative movement between them and thus fixing their relationship, any other points of contact are superfluous and serve no useful purpose for securing and establishing the relationship between the opposing jaws and/or teeth.

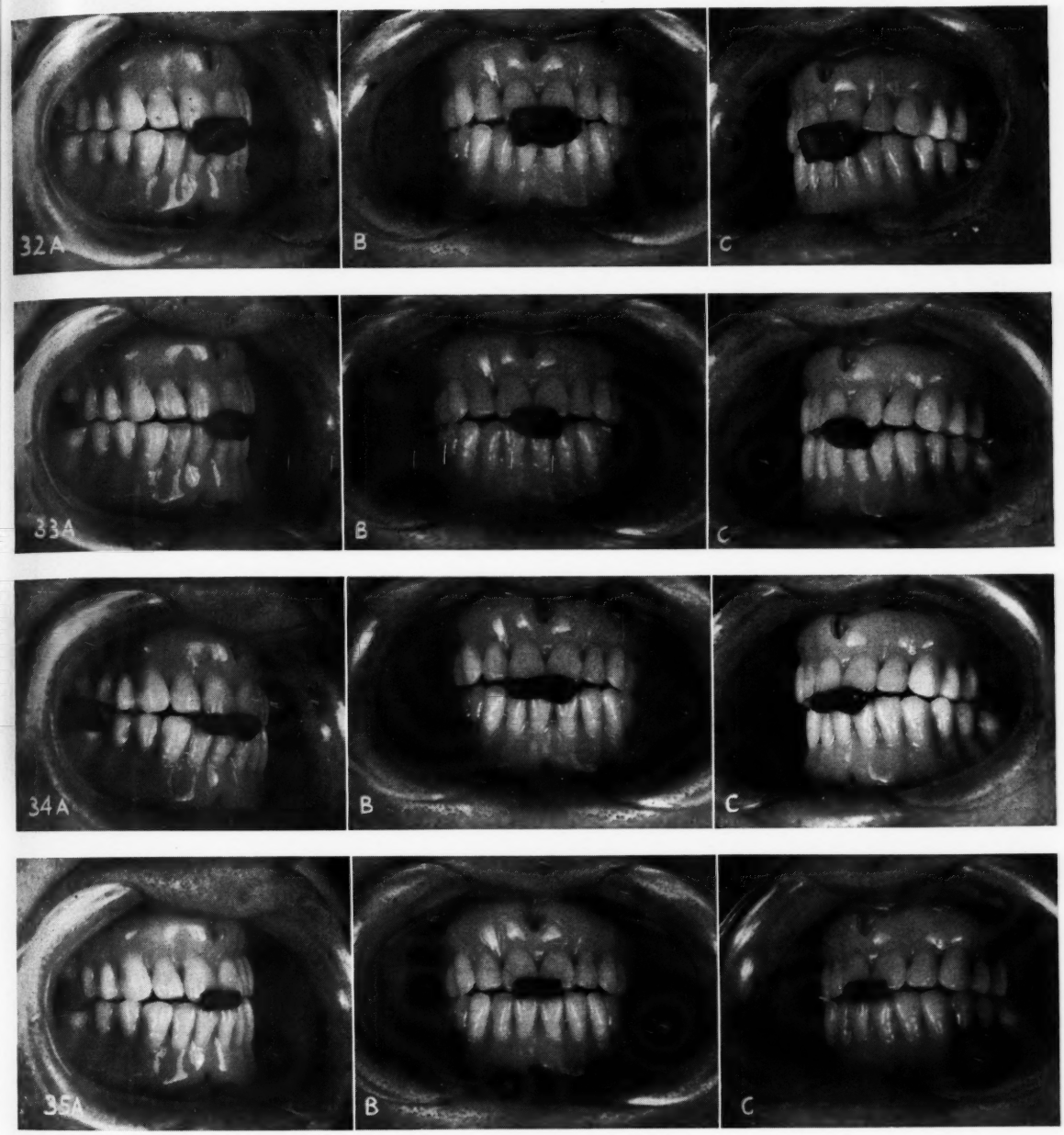
*Location of Points* — The three points; or more accurately, small areas, generally used for making the three-point bite record are located in the incisor and right and left first molar regions. Naturally, prevailing conditions may require minor changes.

## *Advantages*

No other small or large areas of contact of the opposing jaws and/or




**31.**
***Two wax bite records. The bite record on the right is unacceptable and should be discarded because of the penetration of the wax by two occlusal contacts, indicated by the arrows. The bite record on the left is tentatively acceptable.***




teeth with the bite record are required. Many practical advantages are gained by this:

1. *Visibility* — When only three widely separated areas of wax are used for making the record, visibility is materially enhanced. The major portion of the dental area is unobstructed by wax. This major improvement in visibility makes it possible to observe carefully the relation of the opposing teeth, or their substitutes, as the bite record is being made on the patient.

**32.**
***The centric relation three-point bite record.***

**33.**
***The right lateral relation three-point bite record.***

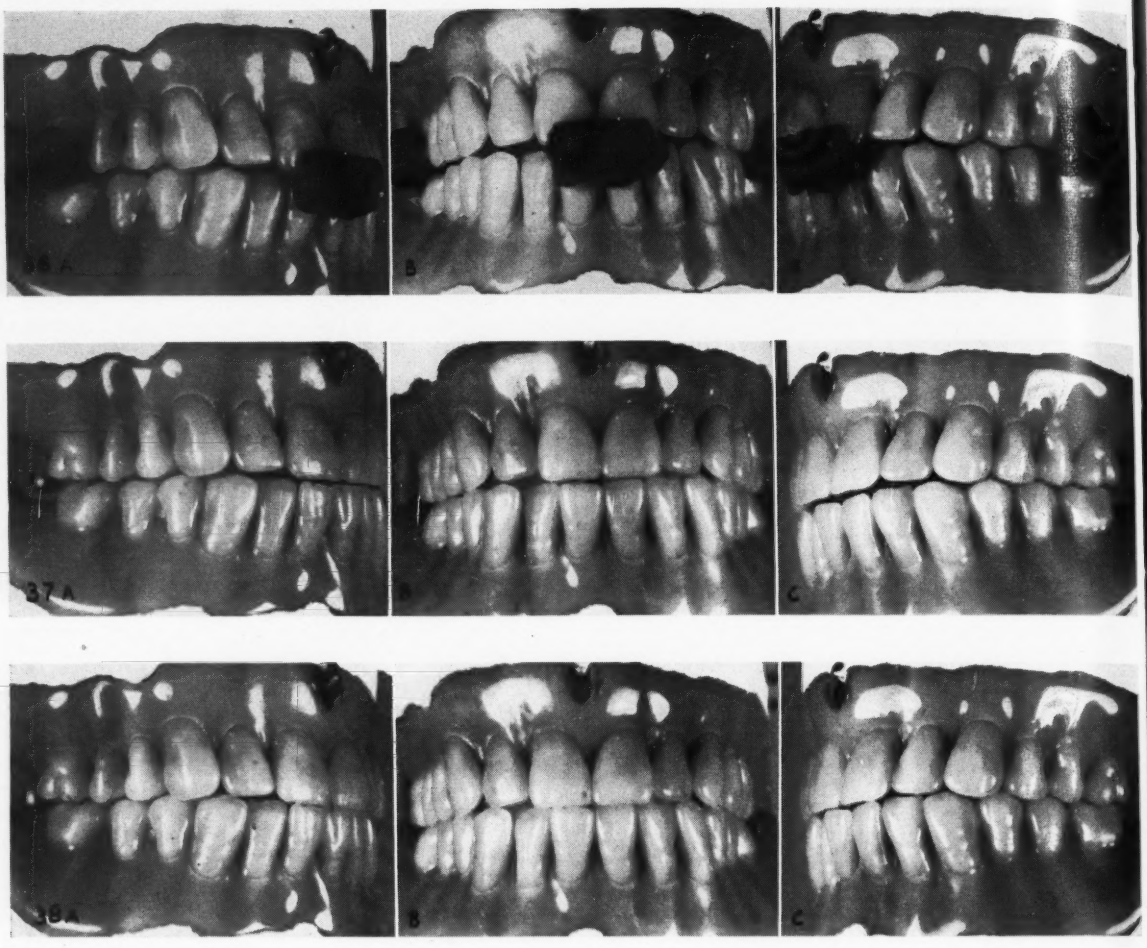
**34.**
***The left lateral relation three-point bite record.***

**35.**
***The protrusive relation three-point bite record.***

2. *Degree of Separation Between Opposing Teeth*—This can be easily gauged and observed while making the bite record. This makes it possible to guide the opposing jaws toward any relationship which is desirable. This is especially useful when making the essential eccentric relation bite records.

The importance of visibility will be clearly demonstrated when the technique for making the bite record is described.

3. *Force Controlled*—Another ad-



vantage concerns the amount of force required for occluding the jaws and teeth through the wax when making the bite record. It is a physical principle that the smaller the area of material that has to be penetrated, the less the resistance of the material and the necessary force required to penetrate it. This is true regardless of the softness of the material used.

Mandibular Deflections Minimized: The least degree of force required for making the bite record is also desirable for minimizing mandibular deflections and consequently the recording of an incorrect strained maxillomandibular relation.

Occlusal Contacts Avoided: It is absolutely essential that any occlusal contact of the opposing teeth must be avoided when making a bite record in order to be assured of obtaining a bite record of a proper undisturbed maxillomandibular relation.

**36.**
***The centric relation three-point bite record, used for relating the dentures in their centric relation on the articulator, shown in place between the dentures.***

**37.**
***The identical denture relationship shown in Figure 36 but with the three-point centric relation bite record removed. Note the necessary slight separation between the opposing teeth.***

**38.**
***The identical denture relationship shown in Figure 37, but with the opposing teeth of the dentures occluded to make contact. Note the slight degree of rotational movement which was required to bring the opposing teeth into contact.***

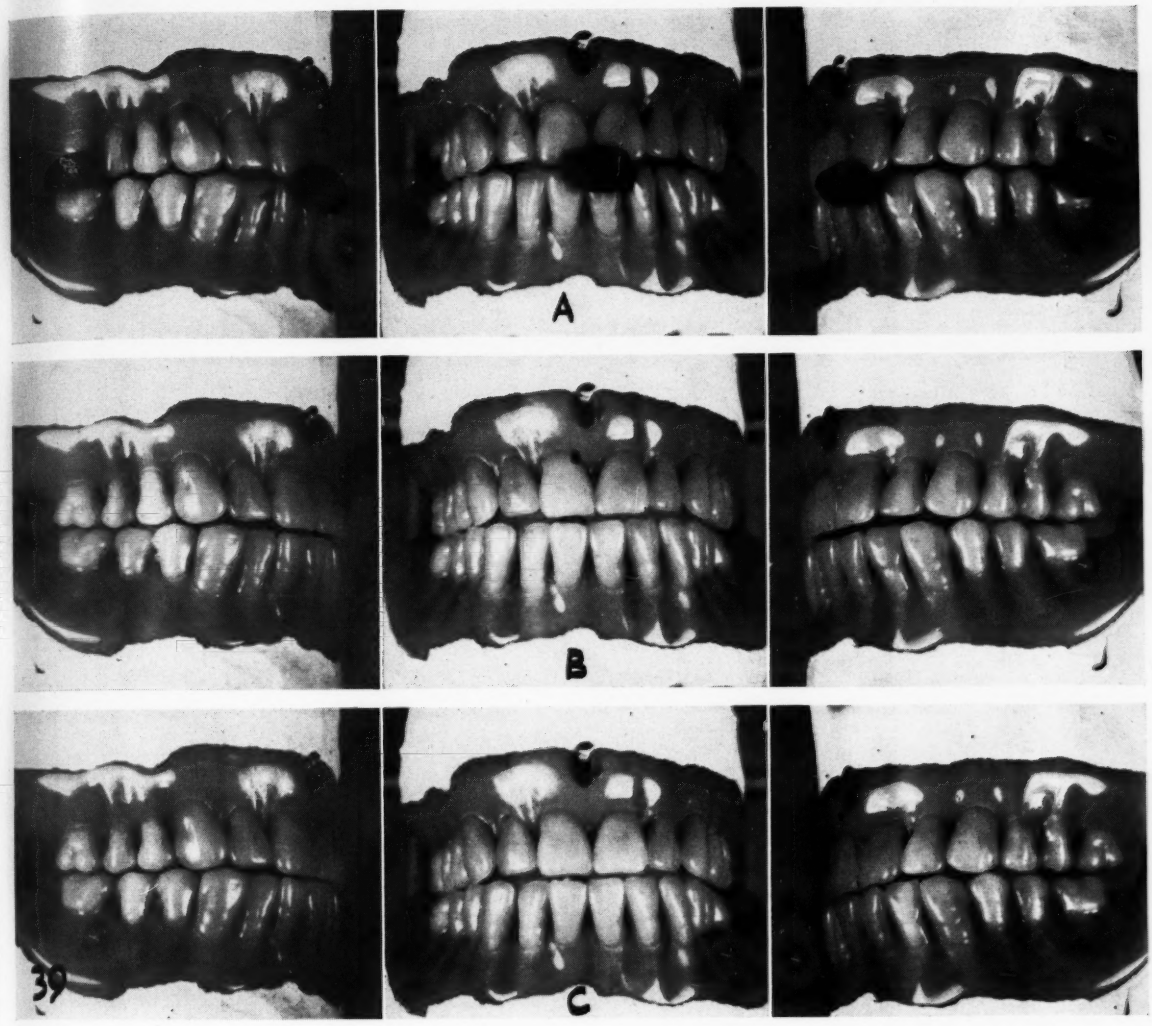
## Procedure

1. The bite records obtained from the patient are used for determining the maxillomandibular relations of the casts or appliances on the articulator.

2. When the bite records are removed the casts or appliances are separated from each other, the separation being equal to the necessary maxillomandibular separation in the patient when the records were made.

3. The slightly separated casts or appliances must be occluded on the articulator to make contact of the opposing teeth. This is accomplished with a rotational movement around the axis of the pivotal joint of the articulator.

4. Theoretically, the smaller the degree of rotational movement required for establishing contact of the opposing teeth, the less the possible degree of error in the occluded maxillomandibular relation of the casts or appliances which could result because of any effective difference in the equivalence of the mandibular hinge-




**39.**
***The right lateral relation of the dentures. A, with the right lateral relation bite record in place. B, the same relation as in A, but with the bite record removed. C, the opposing teeth of the dentures occluded to make contact.***

axis of the patient and the mechanical hinge-axis of the pivotal joint of the articulator.

5. From a practical standpoint, the rotational movement on the articulator could be as much as 3 or 4 millimeters in the incisal region without significant effective error in the occluded maxillomandibular relationship of the casts or appliances provided the rotational axis of the articulator is reasonably equivalent to the patient's mandibular hinge-axis. This reasonable equivalence is secured when the casts or appliances are mounted on the articulator with a special device which will be demonstrated later in the discussion.

6. It is important that the bite records of a patient's maxillomandibular relations should be of relationships with the least possible degree of separation between the jaws and/or teeth without any actual contact being made between the opposing teeth.

7. A bite record which shows any complete penetration through its wax is considered useless and is discarded.

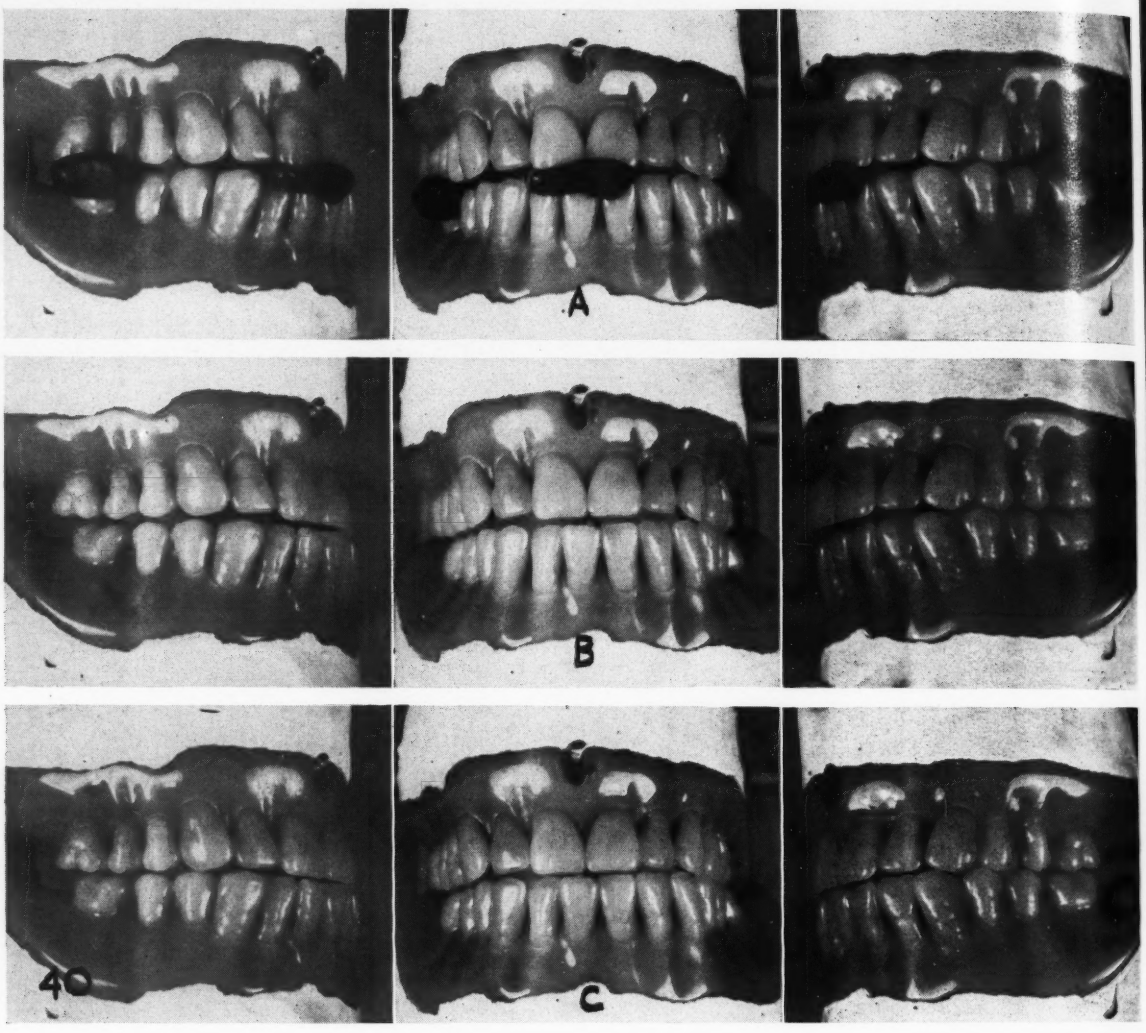
8. Any bite record which is used to determine the maxillomandibular relation of the casts or appliances on the articulator is also discarded and retaken if there is visible contact between the opposing teeth of the casts or appliances on the articulator.

### *Relationships Required*

The three-point bite records must be records of maxillomandibular relations which will be useful for the method being described. The centric relation, protrusive, right and left lateral relations are required.

*Limited Range of Eccentric Relations*—The eccentric relations recorded must be occluded maxillomandibular relations which are functional, that is, relations which are the resultants of functional occluded mandibular movements, as previously described. Eccentric relations beyond this small limited range are useless.

*Several Records May be Made*—Usually, at least two "centric" relation bite records and one of each of the essential eccentric relation bite records are made. The bite records




**40.**
***The left lateral relation of the dentures. A, with the left lateral relation three-point bite record in place. B, the same relation as in A, but with the bite record removed. C, the opposing teeth of the dentures occluded to make contact.***

are labeled for easy identification.

*Any Recorded Relationship Duplicated*—The novel construction of the articulator makes it possible to use a bite record for determining the occluded maxillomandibular relation between casts or appliances mounted on the articulator to duplicate any recorded occluded maxillomandibular relation of the jaws and/or teeth. This mechanical procedure is easily and quickly accomplished. The technique for doing this will be shown.

*Process May be Repeated*—If an occluded maxillomandibular relation which is duplicated on the articulator is unsuitable or otherwise undesirable, a new bite record for the relation can be obtained and again verified on the articulator. This process can be repeated as often as it is necessary. The ease with which this can be done is the primary mechanical feature of the articulator.

When it is desirable, a removable key can be made on the articulator to serve as a mechanical substitute for the bite record. If a key is made, the bite record can be discarded.

*Specific Requirements Noted*—The following important requirements for making the bite records should be noted.

1. An unobstructed view of the dental area. The three widely separated small areas of wax are adequate for making the record.

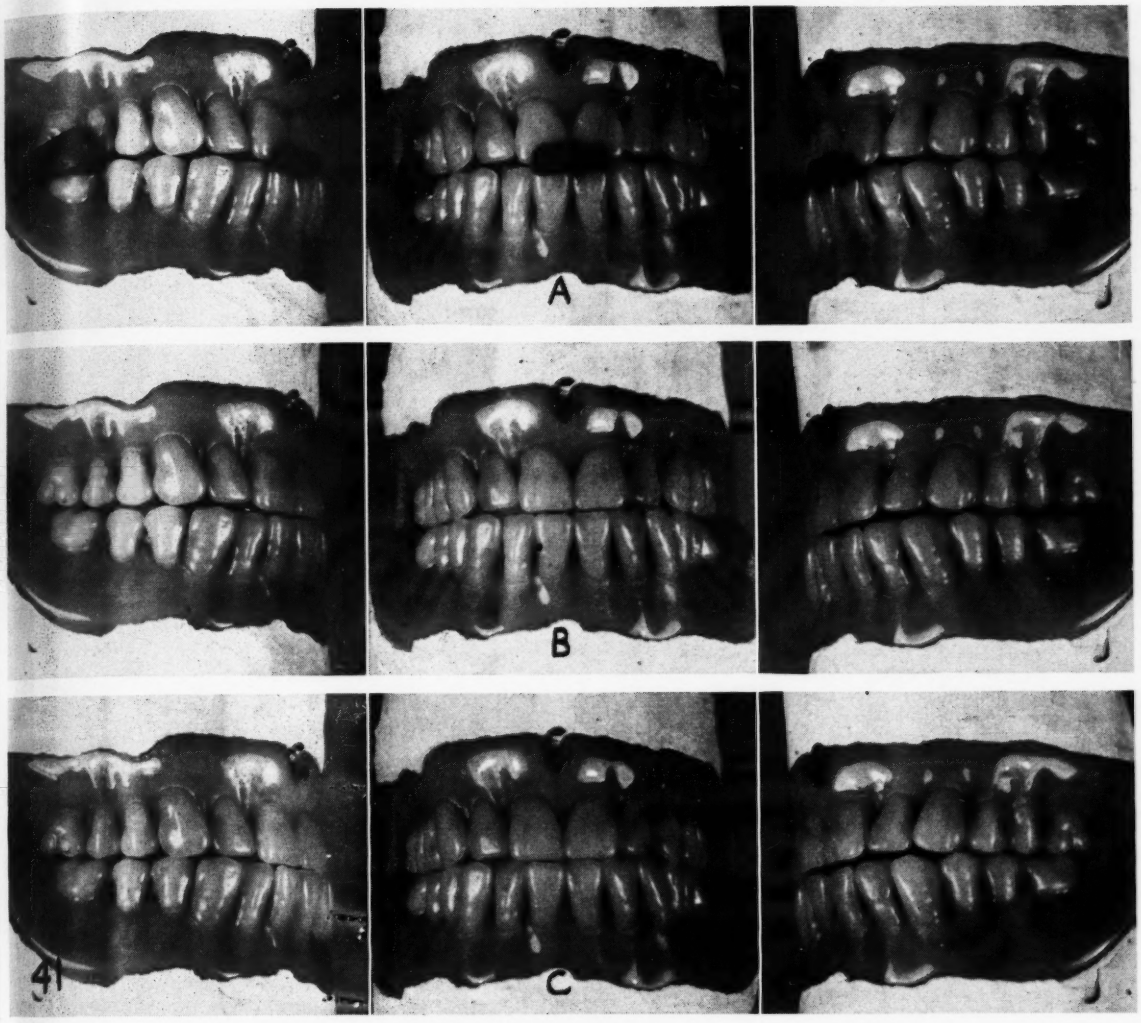
2. The close approximation of the opposing teeth as they are occluded into wax of the record without actual contact of the opposing teeth being made.

3. The tip-to-tip relationship of the cusps of the opposing teeth when the eccentric relation bite records are made.

The advantages of this procedure for making bite records are obvious.

## Summary

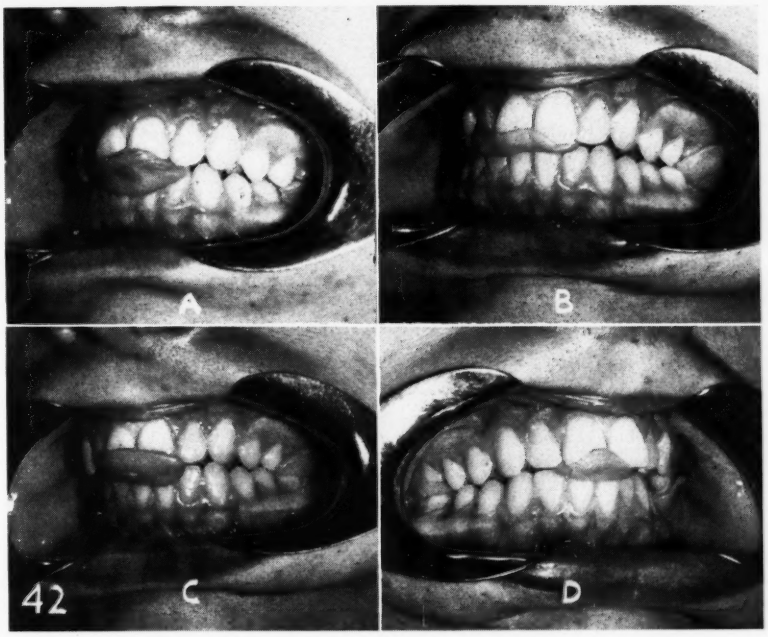
The three-point bite records are made with three small and widely separated areas of wax. All the remaining wax of the bite record in




**41.**

***The protrusive relation of the dentures. A, with the protrusive relation three-point bite record in place. B, the same relation as in A, but with the bite record removed. C, the opposing teeth of the dentures occluded to make contact.***

***Note the slight degree of rotational movement on the articulator required to bring the opposing teeth into contact for all the eccentric relations of the dentures shown.***



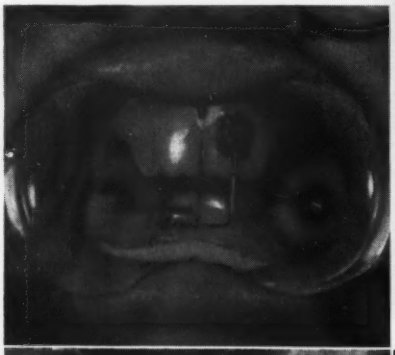

**42.**

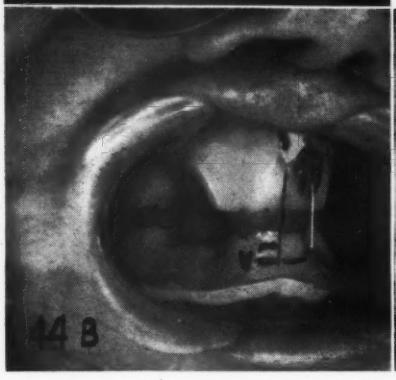
***A, the centric relation; B, the protrusive relation; C, the left lateral relation; and D, the right lateral relation three-point bite record in a patient having a full complement of natural teeth requiring occlusal analysis and adjustment.***

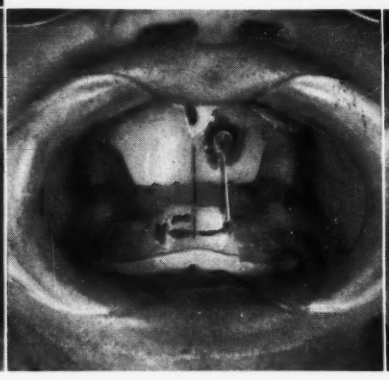
**43.**
***The patient's casts properly related on the articulator with the centric relation bite record still in place.***

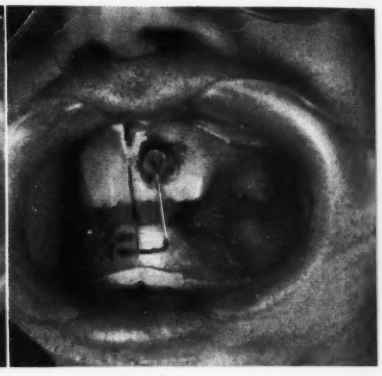
***The principles of the three-point bite record are applied for making the centric relation bite record employed for establishing the centric relation of edentulous casts for the construction of full dentures when they are mounted on the articulator.***

***The details concerning the construction of the bite-blocks on the base trays used for making the bite record cannot be described in detail at this time. They are, however, well seen in the photographs.***

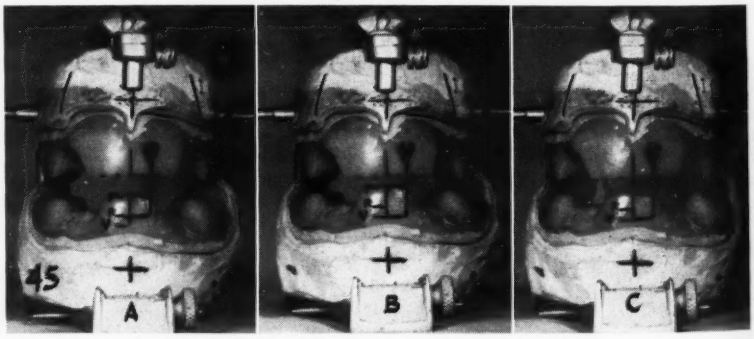






**44.**
***The bite-blocks in the patient's mouth. A, before the three-point centric relation bite record is made. Note the slight separation between the bite-blocks when they are in their centric relation. The device seen attached to the bite-blocks is used as a guide for determining the vertical dimension of the centric relation when the bite record is made between the bite-blocks. B, the three-point centric relation bite record in place between the bite-blocks. The right front, and left side views are shown.***




**45.**
***The casts and bite-blocks mounted on the articulator in their centric relation with each other. A, the separation between the bite-blocks when the mandible was in its rest position, as indicated by the attached guide. B, the separation between the bite-blocks at the vertical dimension, as determined by the attached guide. C, the three-point centric relation bite record in the proper place between the bite-blocks. Note that the bite record is made without increasing the slight separation between the casts when the bite-blocks are in their centric relation. When the bite records are made with the teeth, as previously shown, the vertical dimension is increased slightly to assure lack of contact.***

the dental area is cut away in order to leave the major portion of the dental area free and unobstructed by the wax.

All bite records are made with the opposing teeth as closely approximated as possible without any actual contact of these teeth being made.

For the eccentric relations bite records, the eccentric relations recorded with the bite records must be within the occluded functional range; that is, the cuspal tip-to-tip relation of the opposing teeth.

(End of Part Three)

246 *Woodmere Boulevard*

**46.**
*A close-up view of the casts, bite-blocks, and the three-point centric relation bite record properly in place between the bite-blocks, before mounting the casts on the articulator.*

**47.**
*The upper and lower bite-blocks separated with the bite record on the upper bite-blocks. Note the serrations on the lower bite-blocks for keying the bite record. The same type of serrations are on the upper bite-blocks.*

**48.**
*The method for utilizing the spaces between the bite-blocks for stabilizing the base trays and, simultaneously, digitally guiding the mandible into its centric relation, while making the bite record.*

# *Anterior Rehabilitation Above the Cemento-Enamel Junction*

(*Continued from page* 115)

*the six anterior teeth were actually raised a complete full crown length as the incisal edges of the bridge ended at the original cemento-enamel junction.* It is apparent that the function of the root can be extended to achieve new results in rehabilitation.

## *Comments*

It must be determined just where conservatism should end and more radical measures be incorporated for successful results.

1) Conservatism means saving as many teeth as possible in any way that is available no matter how radical the procedure may be.

2) Root canal therapy is more conservative than tooth extraction.

3) Fixed bridgework is in most cases superior to removable appliances.

4) The only entirely conservative procedure that might be employed would be to leave the case untouched. But the satisfaction expressed by the patient sanctions the procedure adopted.

In full mouth reconstruction sometimes an atypical step or procedure must be done in order to accomplish the most satisfactory final results. In cases such as these ultra-conservatism would in many instances damage rather than improve the situation.

71-17 150*th Street*

# NITROUS OXIDE-OXYGEN ANALGESIA *for Modern Dentistry*

## Part One

HARRY LANGA, B.S., D.D.S., New York

**DIGEST**

***In this first installment of his two-part article on modern analgesia the author discusses the advantages and specific applications of this measure which has been found especially valuable in the practice of pedodontics.***

### *General Developments*

Dentistry has developed during the past century along three main pathways: (1) progress has been made in the development of new and better anesthetic drugs to control pain, (2) new materials, new techniques, and new highspeed instruments with water and air coolants have been developed, (3) progress has been made in the elimination of fear in dentistry.

**1.**
***The most important use for analgesia is the elimination of fear of dental procedure.***

*Apprehensive Patient*—There are many theories as to why patients fear the dental experience despite the existence of local anesthesia. Regardless of theory, the fact remains that fear of dentistry constitutes a serious problem. The value of improved techniques and cutting instruments is reduced when fear keeps people away from the dentist and induces in those who do visit the dentist extreme emotional tension. The problem of the dentist is also complicated by the patient's apprehensive attitude.

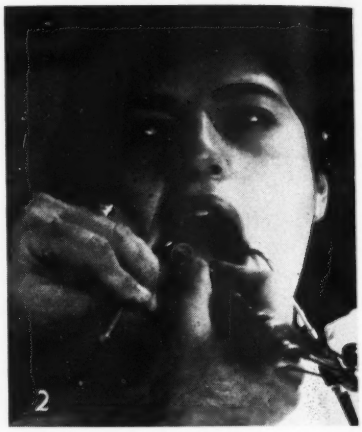
*Analgesia an Aid*—The use of nitrous oxide-oxygen as analgesia has been increasing notably because of its potentialities for solving the problem of fear of dentistry.

### *Advantages of Analgesia For the Patient*

1. *Fear of Dental Procedure Eliminated*—This is the most important result of analgesia, and should be the main objective. It supplies a means for the operator to evaluate the success of analgesia (Fig. 1). All other advantages of analgesia stem from this one consideration.

With the use of analgesia the patient will keep his appointment, have more extensive treatment, and maintain his oral health at a higher level and for a longer period of time.

2. *Sound May Produce Apprehension*—Bone is an excellent conductor of sound. The noises created by dental instruments are magnified as they are transmitted throughout the cranium (Fig. 2). Most people intensely dislike the sounds and vibrations of dental instruments which they translate into pain stimuli. Under analgesia sounds and vibrations of burs, wheels, and stones are greatly dulled.



**2.**
***Noises and vibration of dental instruments may be felt as pain stimuli by apprehensive patients.***

3. *Memory Increases Fear of Pain*—Another useful property of analgesia is that the memory of pain is eliminated or greatly reduced. Thus, although a patient may have experienced some discomfort, when he comes out of the analgesic state he may have completely forgotten, or in memory its intensity may be dulled. This is of extreme importance in treating the child patient. It enables analgesia to be its own premedication.

4. *Manifold Functions*—When the patient discovers the benefits of analgesia, he does not fear the subsequent visit, and does not feel as though he had undergone an ordeal after a visit to the dentist. In this way, analgesia

**3 and 4.**
***Analgesia builds a practice rapidly, and changes an empty reception room into one well filled.***

functions in three ways, before, during, and after each dental experience.

5. *Elimination of Pain*—Analgesia eliminates fear, and also is extremely important in the elimination or dulling of physical pain. The pain of many procedures is entirely abolished, and in others is lessened.

### *Advantages of Analgesia For the Dentist*

1. *Time is Saved*—To label the patient a crank, hypochondriac, uncooperative, or impossible is an admission of failure by the dentist. The majority of people of this description are simply *afraid*. Because they are apprehensive, they react in an exaggerated fashion to many procedures considered minor. They may be great time wasters: they usually do not keep appointments on time, and readily break appointments. Yet in most cases these patients sincerely desire treatment. When fear is eliminated they become excellent patients. They present themselves on time and are highly cooperative in the dental chair. The operator finds that he *saves much time* by using analgesia, both with the fearful as well as with the model patient.

2. *An Aid in Enlarging Practice*—The introduction of analgesia into a dental practice *builds that practice* rapidly, and *changes an empty reception room into one well filled* (Figs. 3 and 4).

3. *Benefit to General Health*—The use of analgesia has a direct bearing on the health and longevity of the dental practitioner. Dentists (and physicians) as a group, are more prone to diseases of psychogenic origin: hypertension, cardiac conditions, peptic ulcers. No matter how detached a dentist may think he is, if he deals all day with people who are tense and apprehensive, he is bound to be adversely affected. When the patient is relaxed by the use of analgesia the dentist also is relaxed.

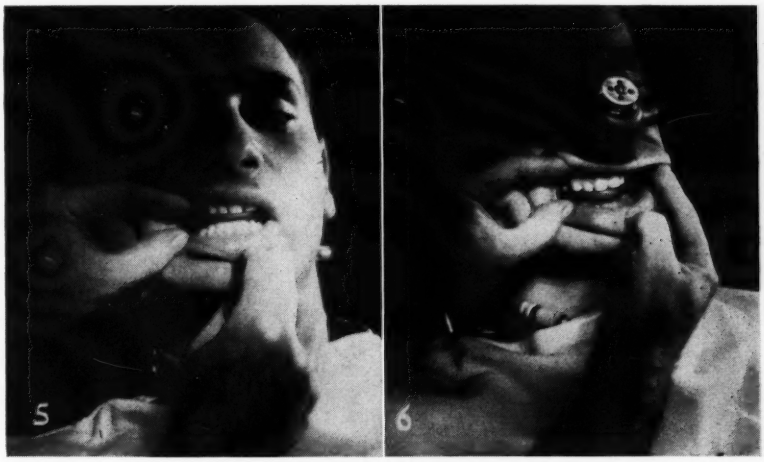
### *Specific Uses for Analgesia*

1. *Operative Dentistry*—(a) preparations for amalgams, silicates, and acrylic restorations, and (b) preparations for gold inlays, gold crowns, porcelain, and acrylic jacket crowns.

2. *Prosthodontia*—(a) preparation of abutment teeth, and (b) taking centric relation. The patient who finds it almost impossible to give a correct centric relation is either tense or so anxious to cooperate and be helpful that he thrusts his mandible into every possible position but centric (Fig. 5). Analgesia permits him to relax sufficiently to allow the mandible to slip back easily into the most relaxed, most retruded position which is centric (Fig. 6).

(c) Removal of prematurities. Keeping the patient relaxed permits him to give more authentic markings for correct spot grinding.

(d) Impression taking. The gagging patient presents a difficult and time-consuming problem. Gagging is a reflex action produced by the transmission of afferent impulses to a nerve center and their outflow thence as ef-



**5.**
***There may be difficulty in obtaining correct centric on some patients.***

**6.**
***Analgesia relaxes the patient and allows the patient's mandible to slip back easily into centric relation.***

ferent impulses independent of volition. The efferent impulses provoking the reflex of gagging may be due to tactile, visual, acoustic, olfactory, or psychic stimuli (Figs. 7 and 8). Many agents, drugs, and topical anesthetics have been recommended to aid in taking an impression successfully. None is necessary if analgesia is used. In the treatment of children gagging also presents a serious problem which can be solved easily with the use of analgesia (Figs. 9 and 10).

3. *Taking Roentgenograms*—A patient with a hypersensitive palate, or a nervous patient may gag during the taking of roentgenograms (Fig. 11). The upper molar areas are usually the most difficult. In many cases the lower molars also present a problem.

Procedure: To ensure success and save time the following procedure should be followed:

(a) Place subject into the middle or deep analgesic stage (Fig. 12).

(b) Remove the nasal inhaler, but do not oxygenate.

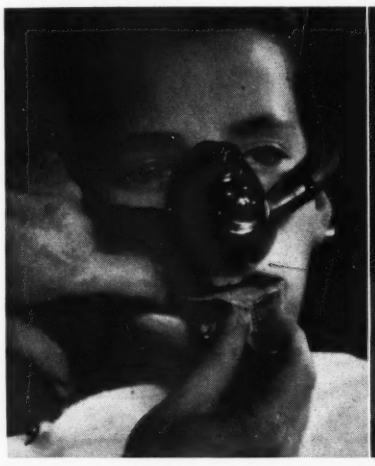
(c) Expose first all the films that may cause gagging, then continue with remainder of series (Fig. 13).

(d) Oxygenate patient.

Analgesia Repeated: If the patient recovers too soon and commences to gag before all the films have been exposed, it may be necessary to give analgesia again. When indicated, this procedure will save time for the dentist and will result in excellent roentgenograms. In addition, the patient will not feel as if he has gone through a major, unpleasant experience.

4. *Periodontia*—Analgesia is valuable in the following procedures:

**7 and 8.**
***Gagging is a common, time-consuming problem to both patient and dentist.***

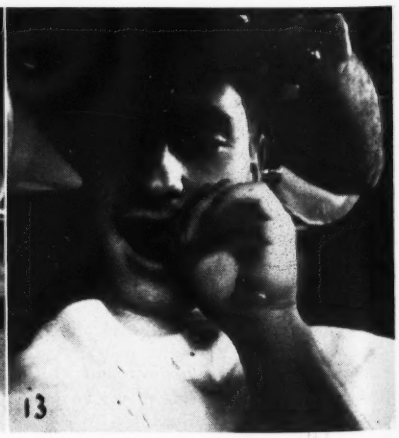


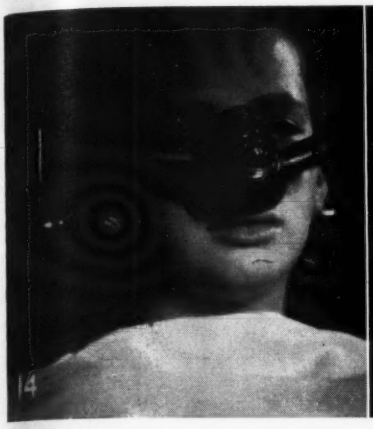
**9 and 10.**
***Showing gagging during impression-taking effectively controlled with the use of analgesia.***

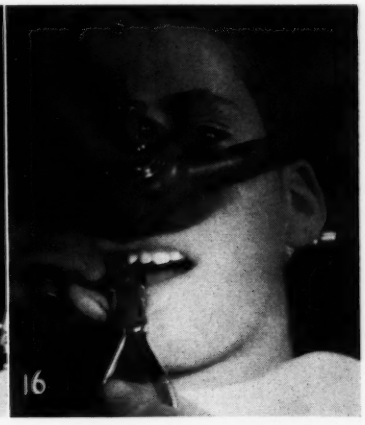
**11.**
***The patient who gags during the taking of roentgenograms.***

**12.**
***Administering analgesia to the gagging patient in order to take roentgenograms.***

**13.**
***Taking roentgenograms on a patient under analgesia. Gagging is controlled.***







(a) Prophylaxis.

(b) Deep scaling or curettement.

(c) Grinding teeth for esthetics or for balancing the bite.

(d) Grinding a tooth affected with pericementitis.

(e) Changing packs after periosurgical procedures.

(f) Eliminating prematurities.

5. *Oral Surgery*—Analgesia is used synergistically with local anesthesia. The patient is first put into the analgesic state (Fig. 14) and then the injection is made (Fig. 15). The analgesia is maintained throughout the entire surgical procedure (Fig. 16). The following advantages are also noted:

(a) Reduction of awareness and dulling of the sounds of instruments alleviate the stress of the procedure.

(b) Radically involved teeth which are extremely loose can be removed with analgesia alone.

(c) A patient under analgesia is not aware of how much time is elapsing, and therefore does not become apprehensive and uncooperative during long surgical procedures (Fig. 1). The operator can thus perform more efficiently and with greater dispatch. At the completion of surgical procedure, no matter how much time it has taken, neither the patient nor the operator is exhausted.

(d) A patient who is experienced in the use of analgesia makes an excellent anesthesia patient. He is accustomed to breathing through the nasal inhaler. He knows what the preliminary symptoms will be, and accepting them readily, slides smoothly into anesthesia.

(e) For incision and draining of infection.

(f) Postoperative irrigations.

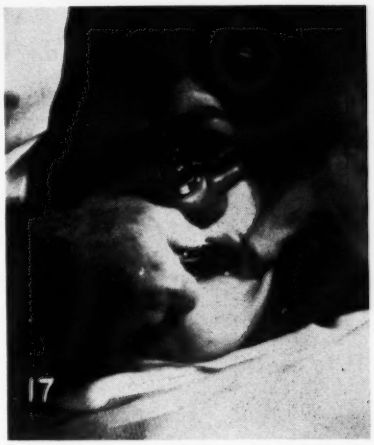
(g) Removal of sutures.

**14.**
***Administration of analgesia prior to use of local anesthesia.***

**15.**
***Analgesia eliminates fear and pain of the needle.***

**16.**
***Patient maintained under analgesia and local anesthesia during surgical procedure.***

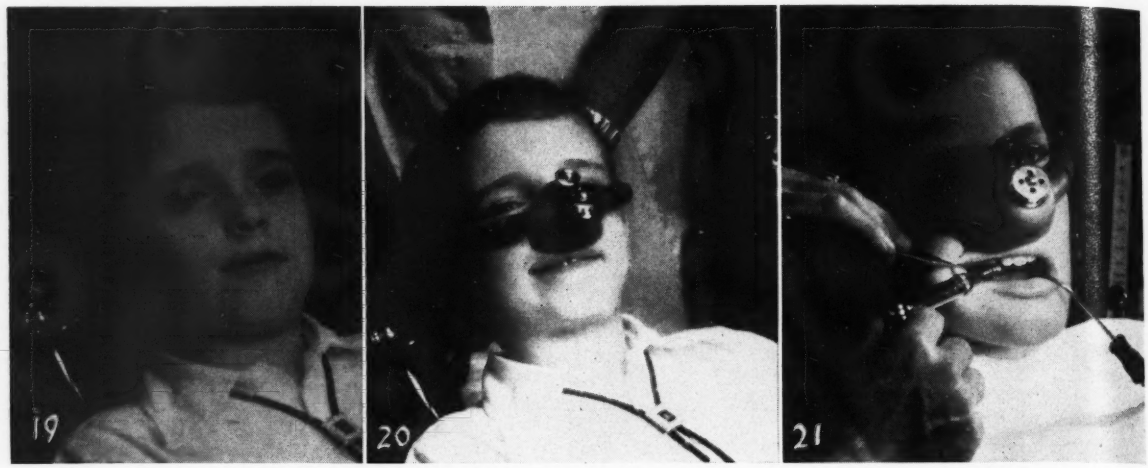
**17.**
***A patient under analgesia remains relaxed during long surgical procedures.***



6. *Endodontia*—(a) For injection with vital pulps, (b) for treating a tooth with pericementitis, (c) for removing shreds of vital pulp that may remain at the second treatment.

7. *Orthodontia*—To control gagging in impression taking, (b) fitting

**18.**
***The child observes her mother receiving analgesia. The ideal conditioning for the child.***




and cementing bands, (c) to control excessive salivation.

## Analgesia in Pedodontia

*Cooperation Obtained*—Most children are willing to cooperate and with a definite objective in view the dentist can gain their confidence. The objective is the introduction of analgesia to the child. With the use of analgesia extravagant forms of persuasion will not be needed.

*Acceptance Prompt.*—If the child patient has confidence in the dentist he will not question the use of this medium as much as would an adult. It is helpful to let a child first observe the use of analgesia on someone else, if possible, a relative or friend (Fig. 18). If a parent is accustomed to analgesia he can condition the child to the idea of analgesia at the subsequent visit.

*Behavior Problem Solved*—The child patient who has been introduced to analgesia is no longer a problem (Fig. 19). Tension and rebellion are eliminated and children who are introduced to analgesia become excellent patients (Fig. 20).

*Time is Saved*—Since preparations on deciduous teeth can be done rapidly by an experienced operator and, since there is no limit to the number of quadrants which can be treated in one sitting with analgesia, extensive treatment can be accomplished in a short time.

**19.**
***The fearful child patient presents a serious problem to many dentists.***

**20.**
***The child patient introduced to dentistry through analgesia is almost never a problem.***

**21.**
***The child patient under analgesia. "Suspended Animation."***

*Many Problems Solved*—Children are, as a rule, more restless in the dental chair than adults. They move their bodies and their heads; they attempt to talk to the dentist while he is operating. They salivate more, flooding the field which is important to keep dry. They often cannot tolerate the cotton rolls, and also gag in impression taking. They object to orthodontic bands or matrix bands pressed against the delicate gingival tissues. They would like to expectorate and take a drink of water at half-minute intervals.

*Suspended Animation*—With analgesia the change that occurs in the child patient may be described as "suspended animation" (Fig. 21). The body does not move, the head remains still. The tongue does not move around, attempting to push the cotton rolls out of the mouth, or interfering with the bur (Fig. 15). Salivation is decreased and there is no spitting, rinsing, or drinking of water. These ideal results are obtainable if the patient is kept under analgesia until the restoration is completed.

*Positive Attitudes may be Suggested*—A child as a rule is more open to suggestion than a mature person. It is therefore relatively easy to suggest positive thoughts to the child in the analgesic state. It may be suggested that he is on a "flying magic carpet," or that he is the pilot of an airplane and can travel to any pleasant destination he desires. He often does take such an imaginary trip. In the meantime, treatment is continued with dispatch and no pain to the patient. For these reasons it becomes economically sound to treat the child patient.

*Practice Increased*—Parents frequently become patients of the dentist who can successfully treat their child. By dealing successfully with the child patient, the preservation of the dental tissues is encouraged and the development of an adult with dental phobias is prevented.

(End of Part One)

250 *West 57th Street*

# FACIAL PROSTHESIS:

## *Orbital Stent as a Carrier for Radium Needles*

**GEORGE A. GRAHAM, D.D.S.,**
**Miami Beach, Florida**

### DIGEST

***This article describes the step-by-step procedure for a simple method of placing radium needles in an area in the mouth which was not easily accessible.***

### *Case History*

The patient in this case, a 59-year-old white woman, had been operated on for carcinoma of the hard palate five months previously. An excision of the hard palate had been made on the right side including the floor of the right antrum. A skin graft was also made. A recurrence in the operative site extruded up to the floor of the orbit and presented as a necrotic space in the roof of the mouth, and a reddened, indurated, protruding area below the right eye.

*Location of Tumor*—The tumor appeared to extend as far anteriorly and medially as the floor of the nose just behind the philtrum, and as far posteriorly as the pterygoid.

*Surgical Procedure*—1. The specimen, consisting of the orbital contents, the inferior orbital plate, the remains of the antrum, and the overlying skin, was removed en bloc.

2. This large defect was debrided of suspicious-looking tissue with a bone curet.

3. A skin graft was taken from the left leg and laid into the defect. Achromycin® gauze packs were used to act as a stent to hold the graft in place.

**1.**
***Shows the orbital defect in the patient.***

**2.**
***A wax insert was made and tried into the orbital defect to eliminate possible pressure points.***

*Obturator Constructed*—The dental department constructed an obturator, which was inserted eight days postoperatively. This enabled the patient to eat, drink, and speak.

*Radiation Therapy*—The pathology report revealed an adenocarcinoma which involved the right maxillary area with infiltration and obliteration of related structures. Due to disease at the margins, it was felt that additional therapy with radiation was indicated.

*Radium Needles Applied with Stent*—The dental service was requested to construct a carrier or stent in which radium needles could be placed. A radium needle is a hollow platinum tube armed with a trocar point at one end and an eye at the other, which contains a radium salt in sealed packets. The needles are similar in appearance and size to a dental bur with the cutting head removed.

**3.**
***Wire loops were embedded into the acrylic plate to hold the stent in place.***

### Procedure Outlined

1. Figure 1 shows the patient with the orbital defect exposed. A moulage was made of the face, including the orbital cavity.

2. A wax insert (Fig. 2) was made using the stone model. This was tried into the orbital defect of the patient in order to eliminate any pressure points that might further irritate the cavity. This wax was attached to an acrylic eye patch by means of prongs or fingers of the same material which extended from the plate through the wax.

3. The wire loops were embedded into the acrylic plate (Fig. 3) to hold the stent in place.

4. All that remained for the radiologist was to insert the needles in the required position in holes made in the wax with a hot pointed instrument. A total of 2700 roentgens was given over an eleven-day period.

*Prosthetic Department*
*Mt. Sinai Hospital*

## Aphthous Stomatitis

### Problem

A patient, aged 32, is under treatment for aphthous stomatitis. It has been reported recently that nystatin has given surprisingly good results. Please discuss the value of that preparation.

### Discussion

The causes of aphthous stomatitis are unknown, but apparently secondary invasion by microorganisms generally found in the mouth plays a role in continuation of the process. In some cases, therefore, relief can be brought about by the use of appropriate antibiotics.

### Treatment Suggestions

*Nystatin*—This preparation, used as powder or lozenges containing the antibiotic, will prove of value in some cases in combating secondary infection with Candida.

*Powdered Tetracycline*—In other cases powdered tetracyclines will prove valuable as mouthwashes when secondary invasion by cocci and other microorganisms sensitive to the tetracyclines has occurred.

*New Preparation*—Dissolved in milk and used as a mouthwash, a preparation derived from Lactobacillus acidophilus and L. bulgaricus has been reported to give excellent results in relieving the pain and shortening the duration of the ulcers.

### Recurrent Cases

In some cases recurrences are brought on by exposure to allergens such as nuts, shellfish, pork and chocolate. In others, trauma to the mucous membrane apparently initiates the attack. In these patients, careful avoidance of the offending type of exposure may result in long periods of freedom. Many recurrent cases, however, resist all forms of treatment.

Adapted from Questions and Answers, *Journal of the American Medical Association* **171**:216 (Sept. 5) 1959.

# *The* EDITOR'S *Page*

ANY PATIENT who is subject to a general anesthetic for any kind of surgical procedure should have his mouth put in hygienic condition before the induction of the inhalation anesthetic. This is a measure to prevent the inhalation of pus from periodontal pockets and pieces of calculus that are always contaminated by bacteria.

This warning comes from a British thoracic surgeon who has demonstrated that the incidence of suppurative lung disease can be markedly reduced if dental sepsis is eliminated.[1] In his frame of reference he defines dental sepsis: "We are considering here that form of infection where a focus of suppuration in the gums is in free communication with the oral cavity and the upper air passages. We are not concerned with closed dental sepsis at the root of the tooth."

We are becoming more aware of the danger of postoperative infection produced by the antibiotic-resistant strains of bacteria that are present in the hospital surroundings. These pathogens have increased in virulence and their presence is an alarming threat following any kind of surgery. If additional pathogens from the oral cavity are superimposed upon the resistant strains of staphylococci the added threat of invasion of the bronchial tree during inhalation of an anesthetic is apparent. The mechanism, as stated by Belsey, follows this pattern: "It is unlikely that the mere inhalation of bacteria from the mouth into the bronchial tubes will lead to infection or suppuration. It is the actual inhalation of particulate matter, such as small particles of inspissated pus or infected tartar that precipitates the train of events leading to pulmonary infection. The inhaled matter enters one of the smaller bronchi or bronchioles and obstructs it. The segment of lung tissue supplied by this bronchiole becomes atalectatic; the infection then spreads from the obstructing plug peripherally into the collapsed segments, leading to a suppurative pneumonitis, abscess formation, or in some cases to massive gangrene of the atalectatic segment."

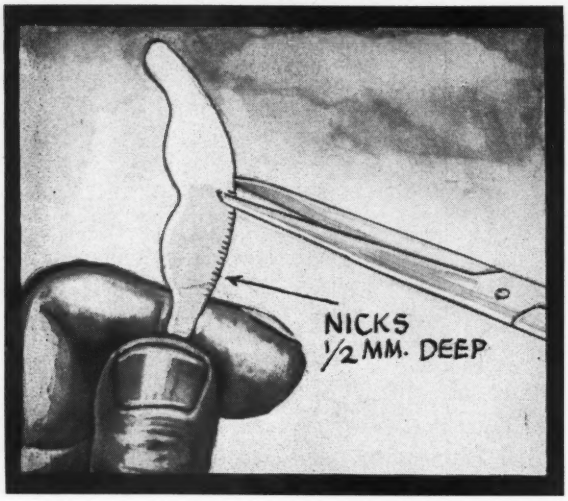
An additional hazard of lung infection in modern anesthesia is created by the use of the endotracheal tube:

"Modern trends in anesthesia may have actually increased the risk of spread of infection. In most cases general anesthesia is administered through an endotracheal tube, and the mere act of intubation of the larynx may lead to contamination of the air passages from the nasal or oral cavities. Not every anesthetist appears to be fully aware of the grave responsibility he bears when he transgresses the laryngeal barrier, nor does he seem to appreciate the importance of a surgical degree of cleanliness and sterility when encroaching upon the respiratory tract.

"The management of this form of infection is largely one of prophylaxis. When a patient is seen in the Out-Patient Department and it is decided that some elective surgical procedure is necessary, then it is the responsibility of the surgeon to refer the patient to a dental surgeon for inspection of the teeth, and, if necessary, for the elimination of any focus of open sepsis. Any dental treatment indicated should be carried out as long as possible before the patient is admitted to hospital for his elective operative procedure, in order that complete healing of the gums may occur before general anesthesia is induced. It is the anesthetist's responsibility to refuse to administer a general anesthetic to any patient for an elective surgical operation in the presence of dental sepsis. In the case of an emergency operation, as for a perforated ulcer or intestinal obstruction, then much can be achieved in the immediate preoperative period by mechanical cleansing of the gums and debridement with a toothbrush and antiseptic mouthwash, or better still, by means of emergency scaling of the teeth. This simple step will go far to eliminate the risk of subsequent trouble."

It is well for us to remember that this strong case for oral hygiene has been made by a surgeon who has had firsthand experience with serious lung suppuration that has been associated with periodontal disease.

[1]Belsey, R. H. R.: Intrathoracic Suppuration and Dental Sepsis, British D. J. 107:251 (November 3) 1959.




1

# Clinical and Laborator

### Separating Saw

**Joseph Goulart, D.M.D., New Bedford, Massachusetts**

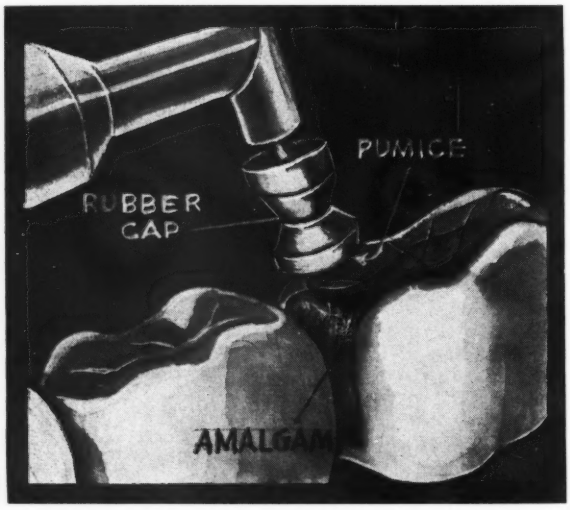
**1.** An extra thin separating saw may be made from a metal matrix band by cutting nicks one-half millimeter deep on the convex edge of the matrix band.

2

### Application of Obtundent Paste

**S. M. Hutchinson, D.D.S., Brooklyn, New York**

**2.** A "Q" tip held in the straight handpiece is used to burnish an obtundent paste on sensitive cervical areas.




3

### Polishing Newly Carved Amalgams

**Richard I. Christiansen, D.D.S., Denison, Iowa**

**3.** After completing the carving of the newly placed amalgam restoration *lightly* smooth the restoration with a rubber cup and pumice.

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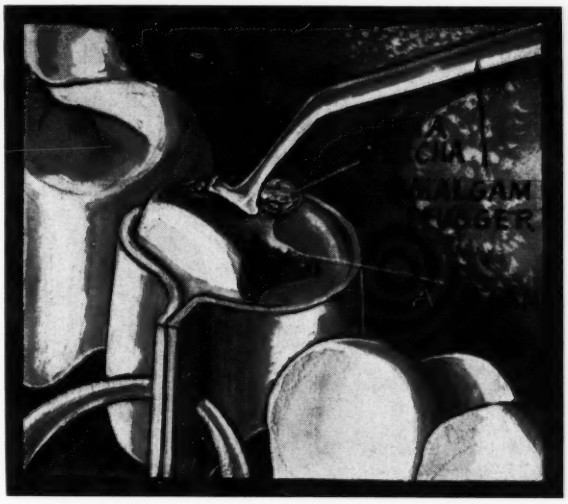
# SUGGESTIONS . . .

### Preventing Margin Fracture

**R. W. Pedersen, D.D.S., Boyd, Minnesota**

**4.** Before removing the matrix band place a piece of warm gutta percha over the marginal ridge of the amalgam restoration and hold firmly in position with an instrument when the band is removed.

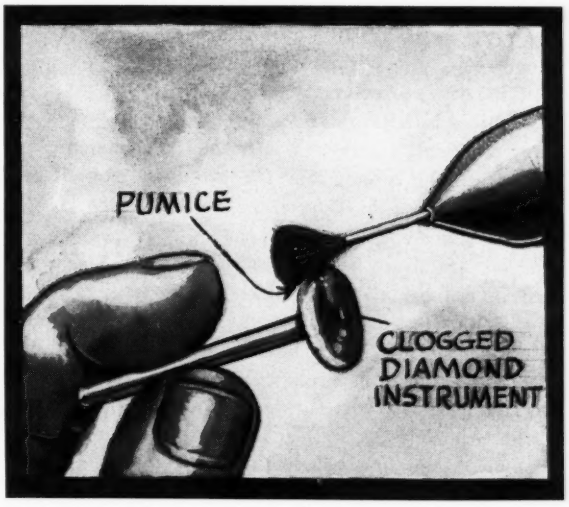


4

### Cleaning Diamond Stones

**L. E. Weil, D.D.S., Jersey City, New Jersey**

**5.** Debris may be removed from diamond stones by brushing them with a pumice-charged cup, disc, or brush.

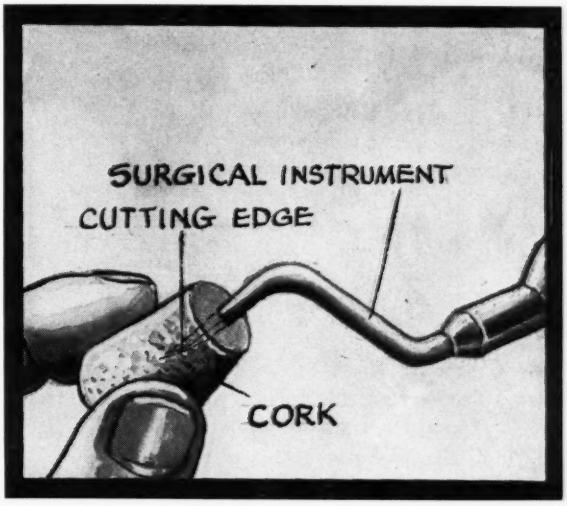



5

### Protection for Sharp Instruments

**S. M. Dooreck, D.D.S., Brooklyn, New York**

**6.** The cutting edge or point of an instrument may be protected by using a small cork.




6

technique involved; and jot down the advantages of the technique. This shouldn't take ten minutes of your time. Turn to page 140 for a convenient form to use.

Send your ideas to Clinical and Laboratory Suggestions Editor, DENTAL DIGEST, 708 Church Street, Evanston, Illinois.

# MEDICINE and the Biologic Sciences

## Drug Addiction

In general, there are two types of addiction. The first and less common is a purely physiologic dependence occurring from long-repeated exposure to narcotics as in a protracted illness. Fortunately, these adults can lose their dependence by gradual withdrawal provided the narcotic has not supplied a psychologic support. The second group represents the majority. These are persons in whom addiction is a manifestation of psychological abnormality.

It is noted that many who legitimately take narcotics for pain do not suffer obvious deterioration from their use. Perhaps the answer to this lies in the fact that narcotics provide a counterbalance. When one is in pain, the drugs provide analgesia and the subject is left to act in a relatively rational manner. When the counterbalance is euphoria for the relief of psychologic distress, the action is different. Instead of using the drug constructively so one can proceed in as near normal fashion as possible those utilizing the euphoric effect do so primarily for emotional self-gratification and psychologic escape. And the path is all down hill.

Approximately 80 per cent of addicts are males and nearly 60 per cent are colored. The majority have a criminal record and 75 per cent began using narcotics before the age of 21 years. The addict may come from any stratum of life. Usually he is not detected until the drug takes its toll.

Regardless of social status, addicts have one thing in common: the fear of pain, whether physiologic or psychologic. Heredity, environment, or both have given them an insecure ego which frequently leaves them shy and diffident. Frequently they compensate and become obnoxiously extroverted in an attempt to hide their insecurity. These personalities often function satisfactorily until stress occurs. Even then they are safe until they discover that a synthetic feeling of security can be feigned through the use of narcotics. Once the narcotic-prone person is aware of this he often responds to this pharmacologic crutch. After this, trouble begins in most cases.

In general, addicts develop from several factors: an insecure personality which leaves them receptive to anything offering relief from stresses of reality, a lack of awareness of dangers involved in the use of narcotics, and the opportunity to obtain the drugs. Among addicts in the general population, one of the most vicious causes of the spread of addiction is association with other addicts.

---

*Bloomquist, Edward R.: The Doctor, The Nurse, and Narcotic Addiction, Gen. Practice* **18**:124-129 (*November*) 1958.

## Low Back Pain

Low back pain can be extremely annoying to the dentist. Stretching or tearing of adjacent soft tissues always precedes protrusion of pulp, thinning of intervertebral discs, spondylolisthesis, or trauma. Low back pain from these conditions is relieved primarily by incision or excision of damaged portions of spinal ligaments.

The sensory nerve endings, necessary for pain, are found in ligaments, muscles, fascia, and bones, but not in the nucleus pulposis. Both anterior and posterior longitudinal spinal ligaments and the posterior annulus fibrosis are richly supplied with nerve endings. Here the ligamentous tissue is the important structure. And only when it is damaged by stretching or tearing can the underlying nucleus pulposis induce pain.

Pressure on a spinal nerve in the vertebral canal probably does not cause pain. Yet sensory, motor, and reflex components may be affected by direct pressure or irritation.

Low back pain may occur if thinning of an intevertebral disc produces overriding and malalinement of lateral intervertebral joints. In this case, the fibrous structure is stretched. Another cause of pain is trauma that structurally alters supraspinous and interspinous ligaments. Pain of spondylolisthesis may result from tearing of the fibrocartilaginous tissue that fills the defect of the pars interarticularis.

Bony union results in only 60 per cent of the surgically treated cases. Still the pain is relieved in a larger percentage. Operative benefits must, therefore, be ascribed to something more than stabilization or fusion of the spine. Conversely, the value of bone transplants in spinal fusion seems questionable.

Because sensory nerve endings for pain lie in ligamentous structures, possible sources of irritation are removed by excising supraspinous and interspinous ligaments and lamina with the spinous process. When, in osteoarthritis, the affected joint is cut out and motion prevented by a bone graft, pain is probably relieved simply by excision of the stretched capsule about the lateral intevertebral joint.

---

*Lichtor, Alexander, and Lichtor, Joseph: The Enigma of Low Back Pain, Clin. Orthop.* **11**:93-97 (July) 1958.

(*Continued on page* 138)

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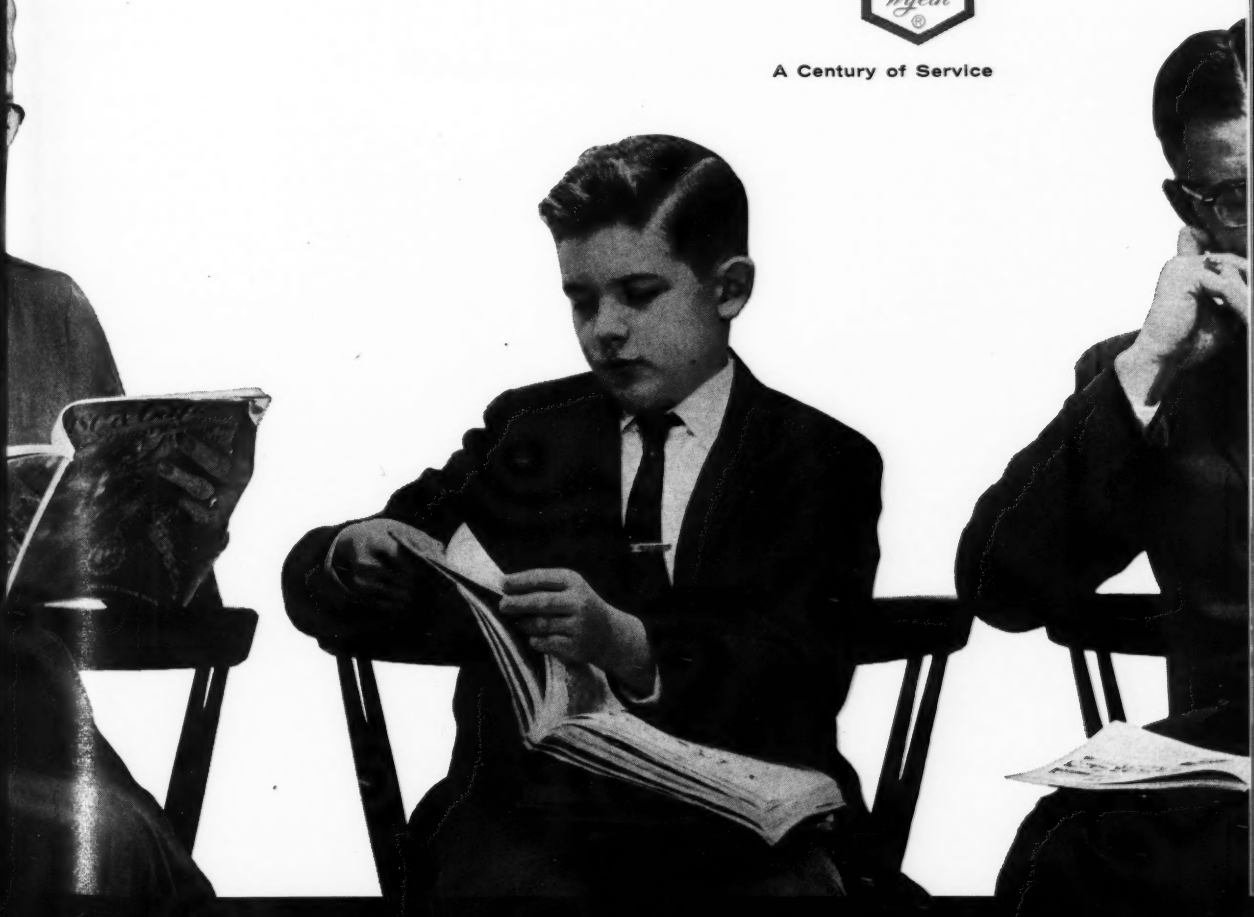

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**Soldering**

It is important to use the reducing portions of the blow-pipe flame (Fig. 1). Any attempt to solder with the oxidizing zone of the flame will result in poor flowing solder.

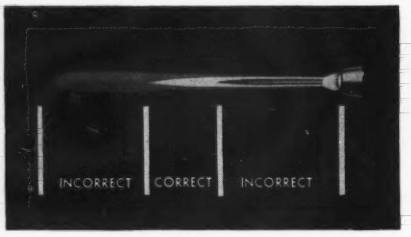



Fig. 1

Try to heat both sections of the job evenly. Thin sections, for example, heat up very fast, and one of these being soldered to a heavier section is liable to be heated up into the danger zone before the heavier section is hot enough for the solder to flow on it. Use a small brush flame and heat just back of the thinner section so that the thicker section will heat first, and then both parts may be brought to the same temperature.

Heat the work, not the solder. If the solder is heated to its melting point before the metal parts are hot enough, the solder will "ball-up".

Do not depend on gravity alone when trying to make the solder flow through a joint. Solder will flow to the hotter sections of the metal and may, if necessary, be "drawn up" by heating above the solder already flowed on it.

Do not use an excessive amount of solder. It is difficult to remove, and there is no point in wasting it. Always assemble the parts reasonably close together as a large space filled with solder makes a weak joint.

A less common, but still serious, cause of clasp wire failure is found when prolonged heating during the soldering operation causes solution of the wire in the solder. While these illustrations show a clasp wire, the same effect would be true of any thin cast section similarly treated. Fig. 2 shows a section of a soldering job done correctly. The joint was properly fluxed and the flame removed as soon as the solder flowed. The wire is the same diameter throughout, and exhibits no grain growth.

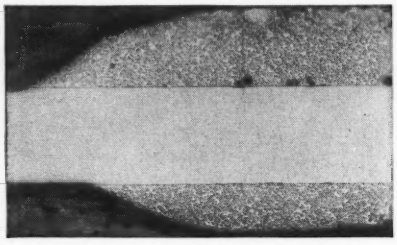


Fig. 2

Fig. 3 on the other hand, shows what can happen when the solder is kept molten for as little as 45 seconds. Here the diameter of the wire is considerably reduced by having part of it go into solution with the solder.

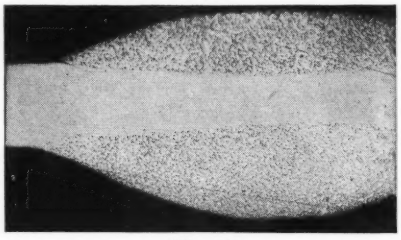
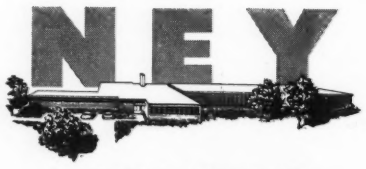


Fig. 3

Although there is apparently no grain growth, it is quite obvious that this wire would break, and break close to the soldered joint. *The J. M. Ney Company, Hartford 1, Connecticut.*

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## *Impending Stroke*

Many impending strokes are diagnosed by three syndromes which are commoner than is generally realized. These are (1) intermittent failure of the vertebral-basilar artery system, (2) beginning thrombosis in the basilar artery system, and (3) intermittent failure of the internal carotid artery system.

The symptoms vary in the same person and may last only a few minutes at a time. Episodes sometimes continue off and on for years before becoming more frequent prior to clotting. Too much attention has been paid to lesions of single arterial branches. If the main vascular channels narrow, blood flow of all peripheral branches is affected in various degrees at different times.

Usually the episodes are sharply defined and transient symptoms precede occlusion of the basilar artery in 40 to 70 per cent of patients. Manifestations of anemia vary according to the region affected. Usually, dimness, weakness of any or all limbs, dysarthria, dysphagia, diplopia, confusion, and vertigo occur in various combinations with appropriate neurologic changes. Between attacks, the subject is well and neurologic findings are normal.

If most or all symptoms appear during a simple episode, the diagnosis is fairly certain. The attack is generally incomplete, however. Signs more suggestive than others are decrease in vision or anopsia in both halves of the visual field, hemiparesis alternating between right and left limbs, or dysarthria, dysphagia, and diplopia. Well-defined numbness shifting from side to side in separate attacks is an excellent clue.

Intervals of faintness or confusion are helpful in diagnosis only if sharply periodic and plainly described. Dizziness, lightheadedness, and giddiness are less specific. True vertigo or feeling of rotation is possibly due to basilar anemia. Headache means little except in relation to a mass lesion.

When basilar thrombosis is starting or has started, weakness of limbs may arise as hemiparesis or quadriparesis. Later all extremities are usually affected. The various brain-stem syndromes are fragments of the whole and represent clotting within the system. When these early symptoms of arterial insufficiency are noted, massive cerebral infarction may be avoided.

---

*Siekert, Robert G., and Millikan, Clark H. The Concept of Early Diagnosis, Arch. Int. Med.* **101**:872-880 (*July*) 1958.

(*Continued on page* 140)

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## CLINICAL AND LABORATORY SUGGESTIONS

(*See pages* 134 *and* 135)

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Subject _____

Explanation of Procedure:

Sketch:

Suggestions submitted cannot be acknowledged or returned.

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### *Nails - Diseases*

The practicing dentist has a special interest in the prevention and treatment of diseases of the nails. Conditions of the nails may be manifestations of systemic dermatoses or the result of local factors or infection.

Onychomycosis is the commonest infection of the nails. Trichophyton and Monilia are the usual offenders. Pain and nonsuppurative paronychia distinguish monilial from other fungous infection.

Onychomycosis usually starts with scaling of the nail plate. It progresses to a heaped-up opaque appearance, and a powdery consistency. Occasionally, the nail is almost completely destroyed. Infection may start with or without cutaneous manifestations and usually begins on one nail, then spreads symmetrically to the others. The nail may be a focus for reinfecting the glabrous skin.

The infection is difficult to eradicate. A penetrating base of glycols and amino and fatty acids is helpful for topical therapy. For suppurative invasive infection, fractional doses of roentgen rays are valuable. Monolial and yeastlike fungi respond to grenz rays and liquid antifungicidal preparations are almost specific. Surgical avulsion of deep infection is not always successful.

Psoriasis of the nails shows a loss of color at the free margin of the nail and chalky subungual deposits. Usually the glabrous skin is affected. Punctate depressions may be seen. If destruction of the nail is advanced, the disease may be difficult to diagnose. The microscopic findings are usually characteristic. Psoriasis may resemble ringworm histologically, but no fungi are demonstrable. Treatment is unsatisfactory, but diagnosis must be established in order to avoid useless surgical removal.

Nail changes may occur from contact with nail polish and other cosmetics, detergents, oil, tar, and grease. The nail becomes brittle, with fissures and hyperkeratosis. Bacterial infection sometimes is associated. Histologic changes are not always specific.

When atopic dermatitis affects the nails, depressions appear in the nail plate and, as the nail grows, move from the base to the free edge. Corrugations, yellowish black discolorations, brittleness, and splitting are seen. The histology is not specific.

Hypovitaminosis is manifested by transverse depressions with longitudinal striations. When deficiency is extreme, the nail may be destroyed. Usually deficiencies of Vitamin A and D are implicated and ingestion of foods and medicaments containing these vitamins will eliminate the changes in the nails.

---

*White, Cleveland J.: Diseases of the Nails, Indust. Med.* **27**:325-327 (*July*) 1958.

### *Psychosomatic Oral Lesions*

It is well recognized that many systemic diseases present definite oral signs and symptoms. Also it is believed that there is a psychosomatic group which presents mouth lesions. Cancerphobia is noted in some patients as being associated with mouth lesions, particularly lesions about the tongue.

Chronic emotional tension produces a change in the chemistry of saliva, which can be a contributing cause of periodontal disease. The tension affecting the autonomic nervous system can alter circulation and reduce tissue resistance of the oral mucosa. This could easily promote bacterial and viral invasion.

The mouth is the earliest area for pleasurable satisfaction. Many adults continue to use it for the same purpose in their eating, drinking, smoking, or sexual enjoyment. Phobias about immobilizing the mouth often develop because of its vital part in eating and breathing and primitive defense. In women there is a special sexual symbolism of the mouth. Oral bleeding is frequently used in dreams to refer to rape, menstruation, and abortion.

(*Continued on page* 142)

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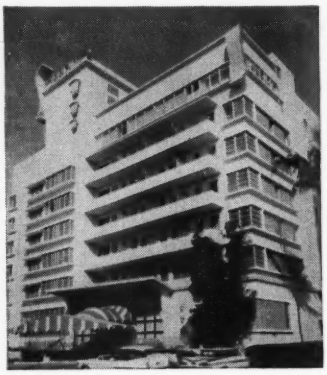

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Tension and nervous strain can be closely associated with some mouth lesions. The simultaneous spread of ulcerative stomatitis among groups of soldiers in many cases may be due to a similarity of stress conditions.

The oral lesions of erythema multiforme in many forms are on the increase. Frequently, stress plays a part in the etiology. It has been strongly suggested that the lesions of lichen planus, some 50 per cent occurring only in the mouth, are the product of psychic stimulation. Aphthous stomatitis is perhaps the commonest mouth lesion seen. Also it is the most puzzling with regard to etiology. A careful study of the history reveals that these lesions begin after an acute emotional upset. They occur frequently in women during pregnancy and menstruation. Some varieties are associated with functional gastric symptoms. The mouth lesion itself suggests vasospasm or minute infarction of the area of the mucosa involved.

Pemphigus almost always produces mouth lesions. There are several acute and chronic varieties. The etiology is unknown and the relationship between pemphigus and stress is not well understood.

Treatment of these disorders is difficult. Probably one should use care to prevent overtreatment as frequently these patients request oral surgery or dental attention because of their mental distress.

———

*Hopp, Eugene S.: Oral Diagnosis of Systemic Disease, JAMA* **168**:748-750 (*October* 11,) 1958.

## CORRECTION

In the article by Doctor Manuel I. Weisman in the February issue, on page 66 the diagram that accompanies Key Figure 8 should be placed next to Key Figure 9. The diagram that accompanies Key Figure 9 should be placed next to Key Figure 10. The diagram that accompanies Key Figure 10 should be placed next to Key Figure 8.

# *Contra-Angles*

### *Aging: Our Common Lot*

GRATUITIES of any kind from a patient are usually considered to be beneath the dignity of the professional relationship. In 30 years of dental practice I have received three "tips." Only one was in money, and that was one dollar. This was from an old lady for whom I had made full dentures. Of the other two: one was a gift of a shotgun and a pair of ice skates from a tycoon. Perhaps there was something symbolic in the gift of these instruments of potential injury or destruction. The other was a "tip" from a stock broker. Fortunately it turned out well. There were also a few such things as books and cigars and cigarettes and an occasional bottle of cheer.

In the non-material forms there were some pleasant letters from patients: cramped and ungrammatical from those in lowly stations; some from people of exalted position, including governors and the family of a President. Of these rewards "beyond the call of duty" the one that I value most was the dollar from the old lady —and her prayers.

Although this grand old soul and I met more than 25 years ago I am reminded of her often nowadays when I hear and read about geriatrics and the importance of this new medical specialty. Dentists also have a part to perform in this important field. We are going to have more older people with us in our practices and we should know more than we now know about their particular and unique problems.

A recent book on the various aspects of aging should be of value to every dentist who encounters older people in his practice: THE BIOLOGICAL, SOCIOLOGICAL, AND PSYCHOLOGICAL ASPECTS OF AGING by Kurt Wolff, M.D. (Charles C Thomas, Publisher).

(*Continued on page* 144)

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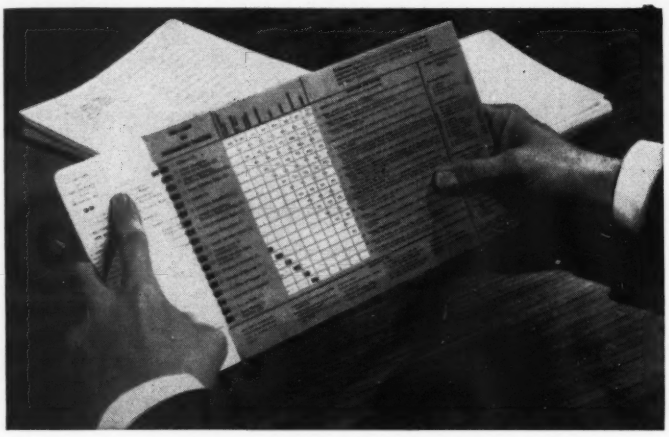

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The biology and the attitudes of persons in senescence are quite different from younger people. Knowledge of these differences will make the treatment by the dentist easier and more effective for both parties in the professional transaction.

The monograph, written by the clinical director at the Galesbury (Illinois) State Research Hospital, has the merit of being short (84 pages). The book is packed with observations and facts that are practical in clinical concept. This will appeal to busy dentists and physicians.

Aging is a process that involves every living organism. It is inevitable and inescapable. Aging is not senility—although it may be. Many human organisms live into the 80th and 90th years with sensorium intact and unimpaired; others are clouded by senility before the 65th year. It is a matter of genetics, plus the environmental field and stresses, plus powers and forces that are unknown. The "content" age of values, judgments, imagination, resourcefulness, adaptability is not necessarily chronologic. One may be old in calendar years and young in spirit or "content." The opposite is often true; being "born old."

The decelerating process of aging is accompanied by reduced circulation to the brain. This means a reduced supply and cellular consumption of oxygen. The basal metabolic rate is lowered in all organs and parts: the biologic fire is burning down. There is an increased retention of water in the brain.

The dentist who treats human tissue should understand the over-all tissue changes that accompany aging. Wolff lists them in this order:

"1) An increase in connective tissue in the organism.

"2) A gradual loss of elastic properties of connective tissue.

"3) A disappearance of cellular elements in the nervous system.

"4) A reduction of the number of normally functioning cells.

"5) An increased amount of fat.

"6) A decrease in oxygen utilization.

"7) A decrease in the amount of blood pumped, by the heart, under resting conditions.

"8) A lesser amount of air expired by the lungs than in a younger organism.

"9) A decreased muscular strength.

"10) The excretion of hormones, especially by sex glands and the adrenal glands is lower than normal."

Dentists who are often more conscious of proper nutrition than are physicians, will be interested to know that the nutritional principles in geriatrics are substantially the same that dentists recommend for the reduction of the incidence of dental disease:

1) Fewer calories (2500 a day for men, 1700 for women);

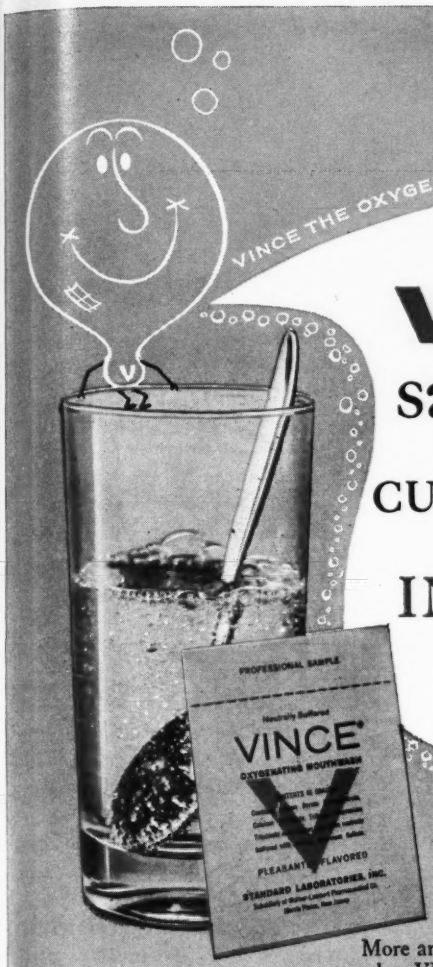
2) More emphasis on the need for proteins, vitamins, and minerals;

3) Abstinence from refined sugars, white flour, and saturated fats;

4) Use of powdered bone meal, brewer's yeast, and wheat germ.

The "nutrition" of the spirit is equally important in dealing with our older citizens. The virtues of faith, hope, and charity are tonic. Faith to persevere; hope to maintain good health in mind and body; charity in

(*Continued on page* 146)

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REFERENCES: (1) Schrader and Schrader: Helvet. odont. acta 1:13, 1957.
(2) Behrman, Fater, and Grodberg: J. Dent. Med. 13:195, 1958.

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human relationships. Those younger in years and spirit should strive to help protect the ego structure of the elderly by encouragement to keep them socially participant and useful.

It is not enough to understand the physical needs and the pathologic processes of the aged. We must also understand the psychologic adjustments in old age. Wolff quotes the six patterns described by Gitelson:

"1) A decreased memory for recent events—a turning away from the painfulness of the present.

"2) A sharpening of memory for the past, especially for a time when life was successful.

"3) A more self-assertive attitude as compensation for insecurity.

"4) A mild depression caused by isolation and the feeling of loneliness.

"5) Introversion and increased sensitivity with querulous and paranoid attitudes.

"6) A free floating anxiety caused by death among the same age group, especially when relatives are involved."

The ancient philosopher Cicero saw the problems of aging with clear insight:

"Those with simple desires and good dispositions find old age easy to take, and those who do not show wisdom and virtue in their youth are prone to attribute to old age those infirmities which are actually produced by former irregularities."

In the present language and current framework of Wolff this means: "the old age adjustments are similar to those of childhood and youth, and old age fears and anxieties are likely to be reactivations from childhood."

Hope is the treasure that the younger may help to pass along to the aged: "There is no reason, I am convinced, for elderly persons to react with the loss of their emotional equilibrium to some of the inevitable physical sicknesses associated with aging. Instead of revealing signs of intellectual decline and emotional regression, they can remain mature, self-reliant, independent, and feel happy and satisfied by reorientation of their goal in life and by stimulation of their creative powers. Aging should not evoke punitive, restrictive, uncomprising authority, but the elderly person can and should by his warmth, his humanism, his experience, his orientation around group principles be the leader of our community and, as Linden expresses it, 'consultant in living.' "

There is a paucity of material in the dental literature and in the context of dental society programs on the dental aspects of aging. I have myself written in a small way on the subject in the medical and dental literature—a mere beginning, an introduction to the subject. If any reader of this column would like to have a reprint of "The Dental Problems of Senescence" from a medical journal I will send it on request. It is my hope that it may serve to arouse some interest and a fuller exploration of the subject.

—E. J. R.

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## *Absorption of Local Anesthetics*

**DONOVAN CAMPBELL, M.D., and JOHN ADRIANI, M.D., New Orleans**

Factors that determine the rate of absorption of a local anesthetic were studied in canine and, when possible, in human subjects. The drugs used were tetracaine, cocaine, procaine, and benzocaine. Objective data was obtained in the form of actual concentrations of each drug in the blood, and the concentrations obtained by intravenous injection were compared with those obtained by infusion, infiltration, and topical application under various conditions. The concentrations reached in the blood after intravenous injection were much higher when infusion was rapid than when it was slow. Absorption from the mucous membranes of the pharynx and trachea gave blood concentrations comparable to those attained by intravenous injection. Absorption of detectable amounts occurred from the surface of the abraded skin and skin after third degree burns but not after first or second degree burns. Since it must be assumed that the danger of undesired systemic reactions is greater in proportion to the concentrations reached by the drug in the blood, anyone using local anesthetics should be well informed as to the factors that may hasten absorption.

From *Journal of the American Medical Association* **168**:873 (Oct. 18) 1958.